National Park Service
U.S. Department of the Interior

Mammoth Cave National Park

Business Plan

U.S. Department of the Interior
Published 2003
Mammoth Cave National Park
P.O. Box 7
Mammoth Cave, Kentucky 42259

Introduction

The purpose of business planning in the National Park Service is to improve the abilities of parks to more clearly communicate their financial status with principal stakeholders. A business plan answers such questions as: What is the business of this park unit? How much money does this park need to operate within appropriate standards? This plan demonstrates the functional responsibilities, operational standards, and financial picture of the park.

The business planning process is undertaken to accomplish three main tasks. First, it provides the park with a synopsis of its funding history. Second, it presents a clear, detailed picture of the state of current park operations and funding. Finally, it outlines park priorities and cost reduction strategies.

A common methodology is applied by all parks developing business plans. Park activities are organized into five functional areas, which describe all areas of business for which a park is responsible. The functional areas are then further broken down into 35 programs. This allows the park to move beyond the traditional National Park Service method of reporting expenditures in terms of fund sources, and instead report expenditures in terms of activities. As a result, the park can communicate its financial situation more clearly to external audiences. Furthermore, using the same 35-program structure for all parks provides a needed measure of comparability across park units.

This process is aided by the use of an Electronic Performance Support System, a web-based application that allows parks to complete the data collection, analysis, and document production with step-by-step instruction.

Completing the business plan process not only enables a park to produce a powerful communication tool, but also provides park management with financial and operational baseline knowledge for future decision-making.

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Superintendent's Foreword

Ronald R. Switzer, Superintendent of Mammoth Cave National Park

Mammoth Cave National Park is the core of one of the largest, most complex, and best known karst areas in the world. It is believed to support the most diverse cave biota found anywhere. Because of these distinctions, the park is designated as a World Heritage Site and an International Biosphere Reserve.

The mission of Mammoth Cave National Park is multi-dimensional. Not only is our mission to protect and preserve for the future the limestone caverns and associated karst topography, and the biologically diverse Green River, but also to provide for scientific study, public education, and sustainable recreation use.

Over the last decade, the park has worked successfully to plan for the redevelopment of outdated facilities. Short-term capital development will be in the tens of millions of dollars. The park has been successful in developing dozens of partnerships in science, resource management, and education amounting to more than $1 million in cost-leveraged funds. Other non-appropriated resources have increased volunteerism and cost-sharing activities. And the Recreation Fee Demonstration Program has helped offset some redevelopment and operational costs.

Unfortunately, during this period the park has experienced increasing labor and operating costs that continue to rise in proportion to total available funding, while significant base budget increases have not been common. Cumulative shortfalls in operating funds reflected in this plan are dramatic, and the current operations analysis conducted shows a deficit of $4.6 million or a 37% shortfall that is significantly impacting park programs.

This business plan includes an analysis of operations and maintenance priorities which clearly illustrates the park's compelling needs. Among the most significant shortfalls are those found in existing and new facility operations and maintenance programs in which there is an identified need for 49 additional full-time positions and $3 million in additional funding. Another priority is highly labor-intensive visitor services operations that are currently supported largely by seasonal staff. Having more permanent staff to provide year round programming would decrease recruitment and training costs associated with high volumes of seasonal employees. This need and the associated needs for education programs and park-based science reflect a shortfall of $694,000 and 10.5 additional full-time employees.

While the park has already begun to develop strategies for reducing costs by focusing on organizational structure and efficiency, using more volunteer contributed services and partnerships, and increasing its energy in establishing a friends group, only a small fraction of its extraordinary shortfall can be made up from non-appropriated fund sources. Mammoth Cave National Park cannot protect its resources unimpaired for the future and provide for quality visitor services without adequate funding. By prioritizing park needs, this plan has given us a framework for future action and decision making and has given us a tool to help the park meet its obligations. It provides an extraordinary opportunity to plan and set aggressive goals for the future, and to build and maintain our partnership and stakeholder base.

My personal thanks to all of those dedicated employees and business plan consultants who made this document a reality. I hope that it answers many of your questions about the business of your national park, and I welcome your comments and participation as we move toward future goals.

Executive Summary

Mammoth Cave became a national park in 1941, and is one of the oldest tourist attractions in the United States. The park was designated to protect and preserve the extensive limestone caverns and associated karst topography, scenic riverways, original forests, and other biological resources within the 52,830 acre area. The park was designated as a World Heritage Site in 1981 and as an International Biosphere Reserve in 1990.

By identifying and documenting gaps between current funds and operational needs at Mammoth Cave National Park, the business plan quantifies the funds necessary to fulfill the goals and mission of the National Park Service.

Key Findings:

• **Historical funding has not been sufficient to cover increasing costs.** Base funds have kept pace with inflation, but increasing costs, primarily associated with labor, have strained available funds. Labor costs, for example, have risen by 28% (adjusted for inflation) since FY 1995.

• **In FY 2002, the funding shortfall for basic operations was 37%.** While $7.6 million was available for basic operations, $12.2 million is needed to meet operations and maintenance needs.

• **The areas most affected by the funding shortfall are facility operations, visitor experience and enjoyment, and cultural resource management.** With a total shortfall of $1.4 million, the facility operations area is the most under-funded, and the trails, grounds, and campgrounds operations are the programs most affected. The visitor experience and enjoyment programs have a combined shortfall of $1 million, and interpretation and visitor safety services activities have the largest needs within this functional area. The cultural resource management program has 1 FTE and requires 4 FTE to achieve program standards.

• **Additional base operating funds are strongly justified and urgently needed.** Despite current and planned efforts to raise additional non-appropriated revenue and reduce costs, a significant increase in base operating funds is the only way to finance the proper care and management of Mammoth Cave National Park.

• **In FY 2002, $531,927 was expended on investments including the planning and design stages for a number of major projects.** The investments funded in FY 2002 include the cataloging of cave cultural resources, an office renovation, and the installation of gates at the Wilson Cave area to protect the Indiana bat habitat. In addition, planning or design phases were underway for the renovation of the Visitor Center, reconstruction of the water system, and updating of the cave electric system. This plan also identifies a number of unfunded investment needs. The top nine total $34.8 million and include rehabilitating the Green River ferry site, reconstructing primary cave trails and park roads, and upgrading operations and administrative facilities.

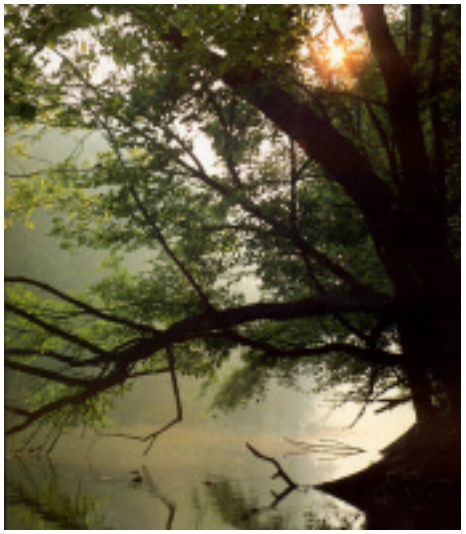
• **The primary financial management strategies for dealing with these funding gaps involve reduced labor costs and the development of a marketing strategy.** In FY 2002, labor costs were 85% of base budget funds, and park management plans to reduce this to 83% over the next three years. Generating additional funds through marketing will strengthen current efforts to promote sustainable tourism in south central Kentucky.

• **The establishment of three important centers places the park on solid ground for the future, the Visitor Center, Learning Center, and Park City Heritage Center.** These projects involve using strategic partnerships to augment existing programs to achieve the mission of the park.

The Historic Entrance to Mammoth Cave has been used for more than 4,000 years.

Park Overview

Park at a glance



The Green and Nolin Rivers meander 31 miles through the heart of Mammoth Cave National Park.

Mammoth Cave became a National Park in 1941, when the Mammoth Cave National Park Association and the Kentucky National Park Commission purchased enough land to satisfy Congressional requirements. A 15 year land acquisition process was undertaken involving the purchase of primarily privately-owned property from 30 small communities and 600 farms. Mammoth Cave National Park, along with Shenandoah and Great Smoky Mountains National Parks, undertook this unprecedented conversion of settled areas to parklands.

Mammoth Cave National Park is a park on two levels - 52,830 acres of reclaimed hardwood forest and winding riverways, and below it, the longest known cave system in the world, surveyed at 365 miles to date. It is located within a day's drive of major population centers, offering camping, hiking, horseback riding, canoeing, fishing, picnicking, and cave tours.

The park has received two international designations. In 1981, Mammoth Cave was designated as a World Heritage Site. In 1990, the Mammoth Cave Area International Biosphere Reserve was designated, with all park acreage included in the core area. Initially containing 112,800 acres, the area of this biosphere was expanded to 909,328 acres in 1996.

In karst terrain, everything that happens on the surface affects the cave below. Groundwater is the common thread touching all aspects of the park. Rainwater enters the underground river system through thousands of sinkholes (some up to 10 miles outside the park boundary) and eventually emerges through springs into the Green River. Upper levels of the cave, cut and dissolved by water, are dry now as the groundwater slowly moves deeper into the landscape. At the water table, the underground rivers are still forming caves.

Mammoth Cave National Park has one of the most biologically diverse river systems in the nation. Historically, 71 mussel species inhabited Green River, where today that number has dwindled to 52. Even so, Green River still holds the most diverse population of mussels in the eastern United States. Park researchers are working with the Army Corps of Engineers regarding water releases from an upstream dam, and with academic experts on propagating species that are threatened and endangered.

Park managers have found that cooperation, conservation, and partnerships are necessary to protect park resources beyond park boundaries. Activities well outside the park boundary (farms, industry, highways, and rail-lines) affect the health of underground rivers. Study of biological impacts has recently begun under the park's Long-Term Ecological Monitoring program.

Because of its location in the highly industrialized southeastern United States, Mammoth Cave National Park is troubled by persistent problems with acid rain, visibility, and sulfur. Effects studies show injury to plants and changes in soil pH. Kentucky issued a statewide mercury advisory in 2000, and a 10-year NPS study reported Mammoth Cave National Park as having the worst visibility of the 40 national parks that monitor air quality.

Park managers strive to restore natural habitat lost when settlers cleared the land for farming in the 1700s and 1800s. Deer were reintroduced in the 1950s; wild turkey in the 1980s; and chestnut, butternut, elm, and showy ladyslipper orchids in recent years.

In addition to extensive natural resources, the park offers a rich cultural history. Archeologists believe prehistoric people entered the cave 4,000 years ago and its stable atmosphere perfectly preserved their discarded torches, sandals, gourd bowls, and feces. The park also contains nationally significant historic structures, including saltpeter (an ingredient for gunpowder) works built in the early 1800s, churches built around 1900, and other structures built by the Civilian Conservation Corps in the 1930s.

Mammoth Cave was rediscovered by a bear hunter in the late 1790s, mined for saltpeter in the early 1800s, and received its first visitors in 1816. Some of the first cave guides were slaves - Stephen Bishop, Mat Bransford, and Nic Bransford - who discovered many of its famous passages.

Rafinesque's Big-Eared Bat.

Enabling Legislation

… the tract of land in the Mammoth Cave region in the State of Kentucky… recommended as a National Park by the Southern Appalachian National Park Commission to the Secretary of the Interior, in its report of April 8, 1926, and made under authority of the Act of February 21, 1925; which area, or any part or parts thereof as may be accepted on behalf of the United States in accordance with the provisions hereof, shall be known as the Mammoth Cave National Park...

U. S. Congress authorized the establishment of Mammoth Cave National Park on May 25, 1926 (44 Stat. 635)

Mission Statement

The mission of Mammoth Cave National Park is to protect and preserve for the future the extensive limestone caverns and associated karst topography, scenic riverways, original forests and other biological resources, evidence of past and contemporary lifeways; to provide for public education and enrichment through scientific study; and to provide for development and sustainable use of recreation resources and opportunities.

Park Inventory

General

52,830 acres of land
85 permanent employees
82 seasonal or temporary employees
620 volunteers donated 31,811 hours of service (FY 2002)

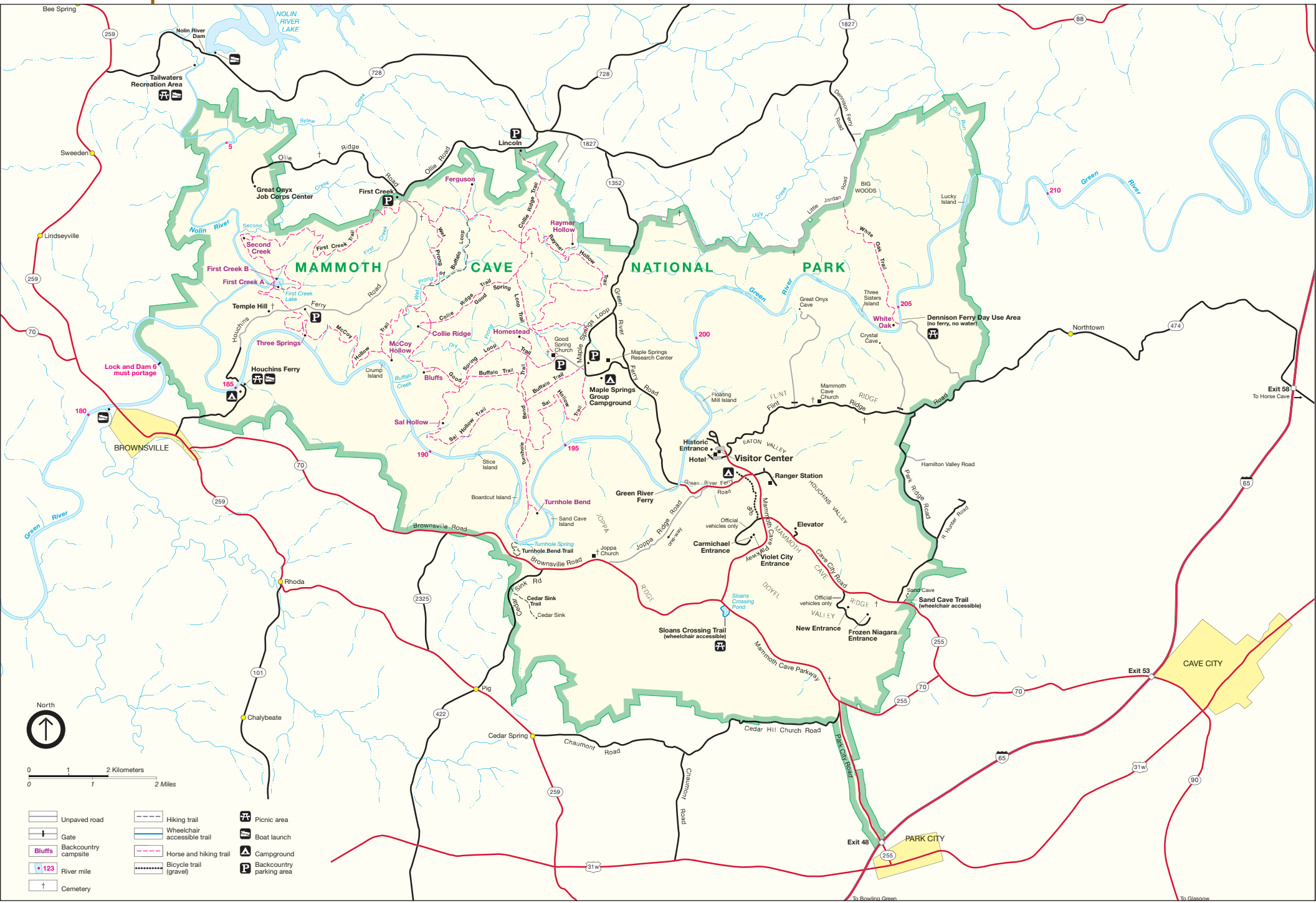
Natural and Cultural Resources

365 miles of mapped cave passages
200+ lesser caves
31 miles of the Green and Nolin Rivers
12 endangered species
11 endemic species
130+ cave species
84 fish species and 52 mussel species
1,100 plant species
43 mammal and 220 bird species
36 reptile and 29 amphibian species
1,008 identified archeological sites
150,000 museum objects
30 listings on the National Register of Historic Places and 4 historic districts
74 listings on the List of Classified Structures

Infrastructure

73 miles of horse and hiking trails
15.5 miles of developed cave trails
101 miles of roadway
148 structures
131 front country and 15 backcountry campsites

Park Map


MAMMOTH CAVE NATIONAL PARK
Bee Spring
Nolin River Dam
NOLIN RIVER LAKE
Tailwaters Recreation Area
Sweeden
Lindseyville
Great Onyx Job Corps Center
First Creek
Ferguson
Lincoln
Ollie
Ollie Road
Second Creek
First Creek Trail
First Creek B
First Creek A
First Creek Lake
Temple Hill
Ferry Road
Houchins
Three Springs
McCoy
McCoy Hollow
Collie Ridge
Collie Ridge Trail
Homestead
Raymer Hollow
Raymer Hollow Trail
Wet Prong
Dry Prong
Buffalo Trail
Good Spring Trail
Spring Loop Trail
Maple Springs Loop
Good Spring Church
Maple Springs Research Center
Maple Springs Group Campground
Maple Springs Ferry Road
Green River
Bluffs
Crump Island
Buffalo Creek
Sal Hollow
Sal Hollow Trail
Lock and Dam 6 must portage
Houchins Ferry
BROWNSVILLE
Slice Island
Boardcut Island
Turnhole Bend
Turnhole Spring
Turnhole Bend Trail
Sand Cave Island
Brownsville Road
Joppa Church
JOPPA
Green River Ferry
Green River Ferry Road
Joppa Ridge Road
Joppa Ridge Road one-way
Historic Entrance
Hotel
Visitor Center
Ranger Station
Elevator
Official vehicles only
Carmichael Entrance
Violet City Entrance
Mammoth Cave Parkway
HOUCHINS VALLEY
MAMMOTH CAVE
Cave City Road
Park Ridge Road
R Hunter Road
Hamilton Valley Road
EATON VALLEY
FLINT RIDGE
Flint Ridge Road
Mammoth Cave Church
Floating Mill Island
Sand Cave
Sand Cave Trail (wheelchair accessible)
New Entrance
Frozen Niagara Entrance
DOYEL
Sloans Crossing Pond
Sloans Crossing Trail (wheelchair accessible)
Cedar Sink Trail
Cedar Sink
Cedar Sink Rd
RIDGE
VALLEY
Cedar Hill Church Road
Park City Road
Chaumont Road
Cedar Spring
Pig
Rhoda
Chalybeate
Northtown
Dennison Ferry Day Use Area (no ferry, no water)
Dennison Ferry Road
Great Onyx Cave
Crystal Cave
Three Sisters Island
White Oak
White Oak Trail
BIG WOODS
Lucky Island
Little Jordan Creek
Ugly Creek
Cub Run
Green River
Exit 58
To Horse Cave
Exit 53
CAVE CITY
Exit 48
PARK CITY
To Bowling Green
To Glasgow
North
0 1 2 Kilometers
0 1 2 Miles
Unpaved road
Gate
Bluffs Backcountry campsite
123 River mile
Cemetery
Hiking trail
Wheelchair accessible trail
Horse and hiking trail
Bicycle trail (gravel)
Picnic area
Boat launch
Campground
Backcountry parking area

Historical Context
Fund Source Analysis

Between FY 1992 and FY 2002, total funds for Mammoth Cave National Park fluctuated from as low as $4.9 million to as high as $8.9 million. However, over the past 5 years, funds from all sources have remained fairly stable, and this trend is expected to continue in the future.

Appropriated Base
Base funds cover most operating expenses for the park, including salary and benefits. In FY 2002, the base budget expenditures were $5.5 million, 67% of total funds available.

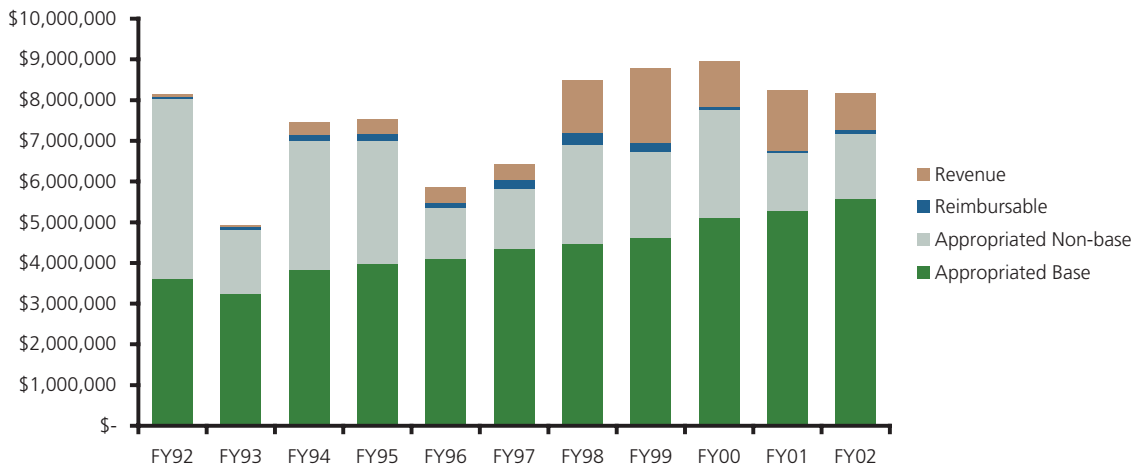
Appropriated Non-base
Appropriated non-base funds are critical for expenses not occurring annually such as line-item construction, cyclic maintenance, repair and rehabilitation, and Natural Resource Protection Program (NRPP) projects. Obtained through a merit-based project competition process, this source is important for the long-term health of park assets. In FY 2002, appropriated non-base was $1.3 million, 17% of total funds available.

Reimbursable
Expenditures on projects performed cooperatively with an outside group or agency are categorized as reimbursable funds. In FY 2002, $75,000 of the $116,812 expended from this source related to a joint mussel propagation project with the Army Corps of Engineers.

Revenue
The federal government's Recreation Fee Demonstration Program (fee demo) allows participating parks to retain 80% of fees collected from visitors to be expended on fee collection costs and authorized projects. The park joined the fee demo program in March 1997 which explains the jump in revenue expenditures starting mid-1997. In FY 2002, the 80% fee demo revenue was $1.6 million of which $898,531 was expended. The remainder is reserved for the planned $6.2 million Visitor Center.

…over the past 5 years, funds from all sources have remained fairly stable, and this trend is expected to continue in the future.

Historical Expenditures by Fund Source



Adjusted Base Budget

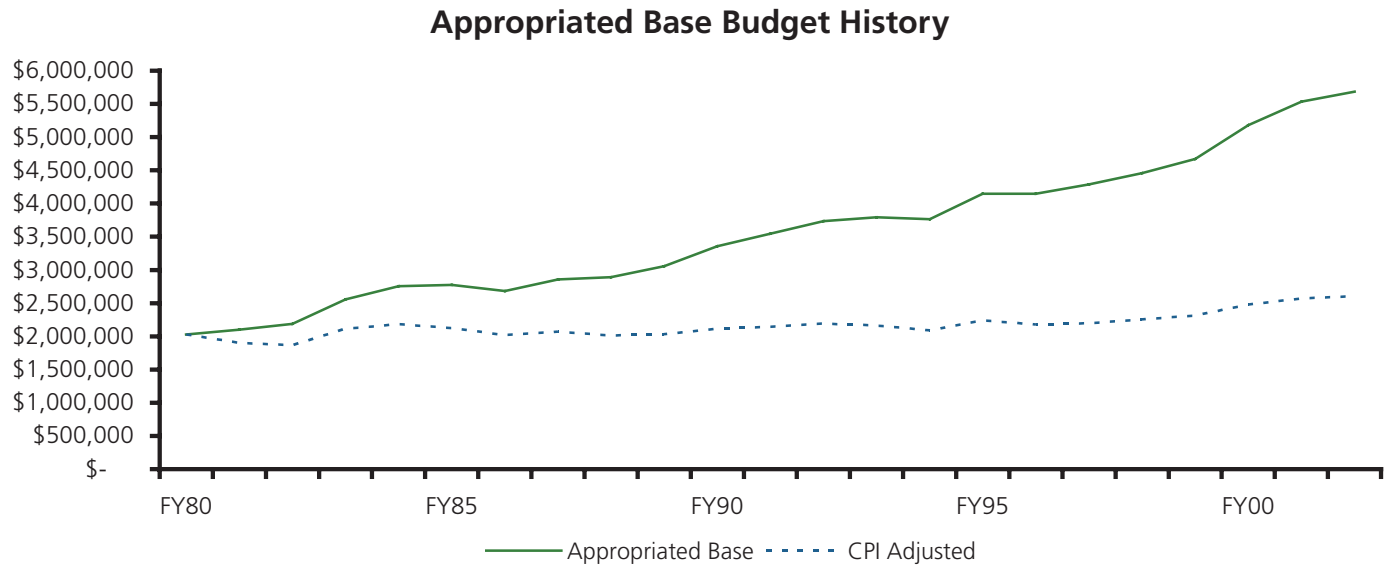
Modest annual base funding increases are received to cover inflation-related labor costs, but these increases do not cover the full cost of pay raises and the rising cost of benefits.

Inflation seriously erodes the base operating budget of the park, resulting in a flat base budget from FY 1980 to FY 2002. Since FY 1980, the base operating budget has increased by $575,030 (adjusted for inflation), or an average annual increase of $26,138.

The level of base budget funding has not kept pace with operating costs, as will become evident in the charts on the next three pages. The base operating budget increases slightly each year to compensate the park for inflation. However, inflation is only one of the factors responsible for increasing operating costs.

The most pressing issue is the increase in labor costs above and beyond inflation. Modest annual base funding increases are received to cover inflation-related labor costs, but these increases do not cover the full cost of pay raises and the rising cost of benefits. Over the past decade, the only base budget increase associated with operating costs occurred in FY 2000 when the park received $320,000 to cover increased sewage and safety costs.

The park is challenged by increasing operating costs as well as labor costs that continue to rise in proportion to total available funds. In addition, park budgets are assessed at the regional and national level for items such as uniforms, software license fees, and large agency-wide consulting studies. These assessments, while necessary, further reduce the park's base budget.



Analysis of Real Growth

Salaries and benefits are the majority of the park's costs, and account for the bulk of base budget expenditures. Between FY 1995 and FY 2002, the park's base budget increased by 19% in inflation adjusted terms - an increase insufficient to keep pace with a 28% increase in labor costs. In aggregate terms, labor costs were $3.7 million or 79% of base budget in FY 1995. This figure rose to $4.8 million in FY 2002 or 85% of base budget.

The explanation for increasing labor costs relates to increases in both the salary and benefits components. From FY 1995 to FY 2002, the average payroll cost per employee rose by 17% with an average increase of $4,268 for salary and $2,440 for benefits. Average salaries increased by 13% while the cost of benefits rose by 36%. The Federal Employee Retirement System (FERS) replaced the Civil Service Retirement System (CSRS) in 1987, and higher benefits costs are associated with FERS employees. For CSRS vacancies filled with FERS employees, benefit costs increase by 20 to 30%.

As the proportion of base budget committed to labor costs increases, non-labor requirements suffer. While 21% of the base budget was available for non-labor expenditures in FY 1995, this figure fell to 15% in FY 2002. This drop in funds of $143,795 results in cut-backs in available supplies, equipment, and services to support park functions. Alternatively, non-labor costs are shifted to non-recurring fund sources or staff positions are left vacant to minimize the impact on funds available for non-labor costs.

Operational Costs: Appropriated Base Funding

		FY 1995 Actual Costs		FY 1995 Inflation Adjusted		FY 2002 Actual Costs		Net Cost Increase	
	FTE	Average	Total	Average	Total	Average	Total	Average	Total
FY1995 Staff									
Salary		*$27,115*	$2,593,242	*$32,007*	$3,061,182	*$36,275*	$3,469,398	*$4,268*	$408,207
Benefits		*$5,806*	$555,257	*$6,853*	$655,451	*$9,294*	$888,837	*$2,440*	$233,386
Subtotal	95.64	***$32,920***	**$3,148,499**	***$38,861***	**$3,716,634**	***$45,569***	**$4,358,226**	***$6,708***	**$641,592**
New Staff									
Salary						*$36,275*	$323,577	*$36,275*	$323,577
Benefits						*$9,294*	$82,899	*$9,294*	$82,899
Subtotal	8.92					***$45,569***	**$406,476**	***$45,569***	**$406,476**
Total Labor	104.56		**$3,148,499**		**$3,716,634**		**$4,764,702**		**$1,048,068**
Non-Labor			**$819,209**		**$967,032**		**$823,238**		**($143,795)**
Total			**$3,967,708**		**$4,683,666**		**$5,587,939**		**$904,273**

Fixed Cost Analysis

Full-time permanent labor costs have risen from 51% of base expenditures in FY 1993 to 60% in FY 2002 or $1.6 million and $3.3 million respectively. Increases to permanent full-time salaries from FY 1999 through FY 2002 added $1.1 million in operating costs.

The Fixed Cost Analysis chart builds on the information presented in the two previous charts by focusing further on the appropriated base budget and its use in supporting annual operating expenditures. Most striking is the fixed cost associated with labor expenditures. The personnel and benefits categories form the bulk of expenditures in an increasing proportion each year.

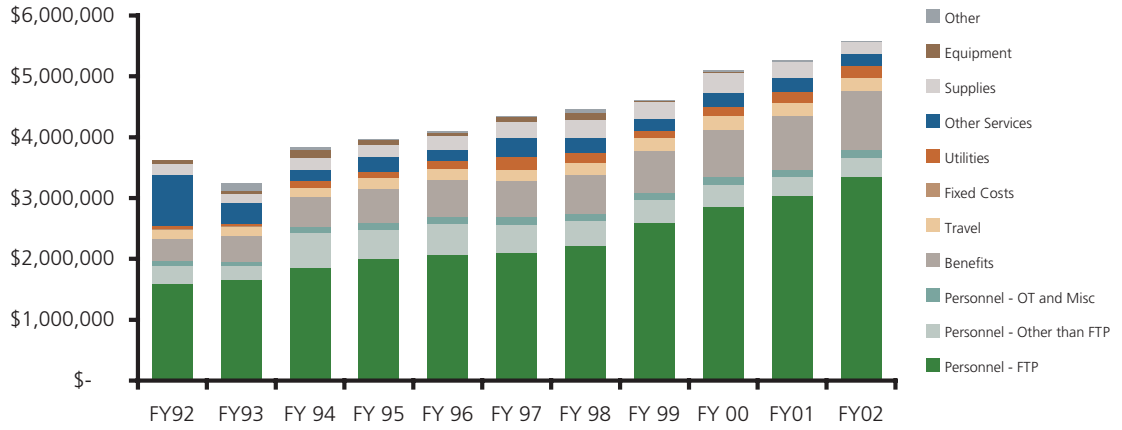
Full-time permanent labor costs have risen from 51% of base expenditures in FY 1993 to 60% in FY 2002 or $1.6 million and $3.3 million respectively. Increases to permanent full-time salaries from FY 1999 through FY 2002 added $1.1 million in operating costs. Higher annual pay raises without a commensurate increase in appropriated base is a major reason for rising costs. Grade increases and the creation of additional positions are also contributing factors.

Salary costs for part-time and temporary employees remain relatively stable between FY 1992 and FY 2002, with a peak of $566,705 in FY 1994. A decreasing trend from FY 1997 onward can be attributed to fee demo revenue for cost of collection labor costs. Part-time and temporary employees cost $320,227 in FY 2002.

Benefit costs for permanent employees were 17% of the base budget in FY 2002, up from 11% in FY 1992.

Total base funded payroll costs have increased from 73% in FY 1993 to 85% in FY 2002 as a proportion of total base budget. This results in an erosion of available funds for the remaining categories. However, unit costs are also rising in these categories, such as electricity, fuel, and telecommunications. The erosion of available funds coupled with a decrease in buying power has forced the park to cut back on basic operations.

Historical Appropriated Base Expenditures by Category



Analysis of Expenditures

The Analysis of Expenditures chart differs from the Fixed Cost Analysis chart as it provides a breakdown of park expenditures from all fund sources. Unlike the previous chart, total park expenditures from all fund sources can fluctuate greatly from one year to the next - as low as $4.9 million in FY 1993 to as high as $8.9 million in FY 2000. However, expenditure levels have remained relatively constant over the past 5 years.

Major fluctuations in the first half of the chart are not without explanation. In FY 1992, 1994, and 1995 the park received appropriated non-base funds to pay for a large wastewater contract. Expenditures for this project appear in the other services and utilities expenditure categories for these years. With these fluctuations aside, all other expenditure categories are increasing over the time period shown.

As was also evident in the Analysis of Real Growth and the Fixed Cost Analysis, the cost of labor is trending upward as a proportion of total park expenditures. Using the same fiscal years for comparison as discussed in the Analysis of Real Growth, labor costs have increased from $3.8 million in FY 1995 to $5.7 million in FY 2002, and the number of FTE used by the park has increased from approximately 108 to 131. The increase in FTE combined with annual increases in labor expenditures places a financial strain on non-labor categories, thus making it difficult to maintain efficient operations.

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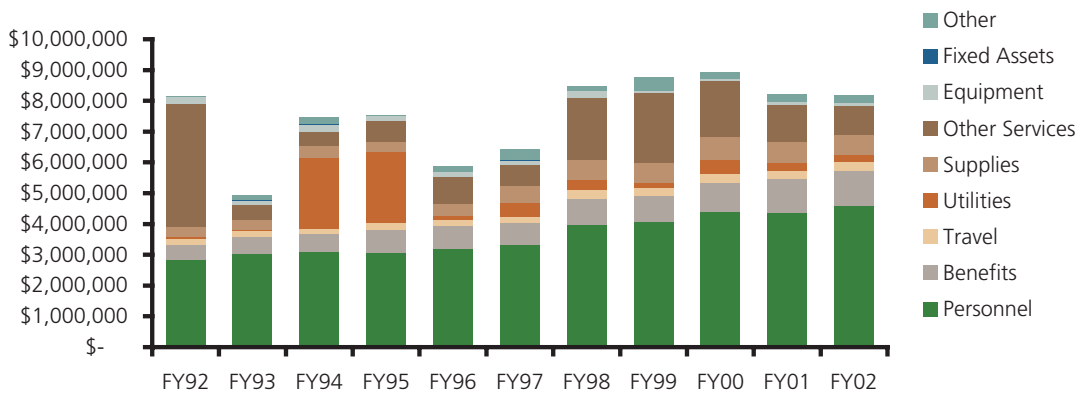
Historical Expenditures by Category



Visitation

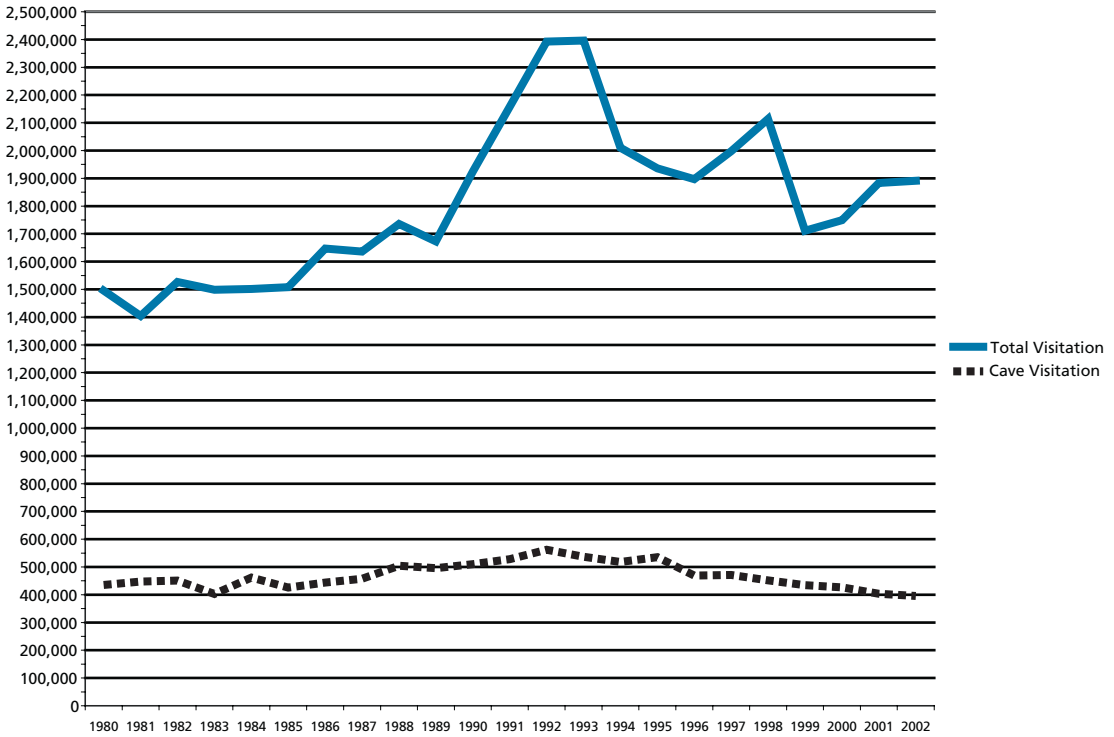
Cave tour visitation has followed a similar declining trend to that of total visitation. It peaked in FY 1992 at 561,699 visitors and has since declined by 30% to 395,521.

Peak visitation to Mammoth Cave National Park occurs from mid-June to mid-August with visitors participating in a number of activities such as hiking, camping, canoeing, horseback riding and, most importantly, cave tours.

Total park visitation increased by 26% since 1980. However, peak visitation occurred in 1993 and has since declined by 21%. It is important to note that the multiplier used to calculate total visitation decreased by 30% in 1994, thus affecting visitation levels from that point onward. Cave tour visitation has followed a similar declining trend to that of total visitation. It peaked in FY 1992 at 561,699 visitors and has since declined by 30% to 395,521.

Possible reasons for declining visitation over the past decade include:

- Local tourism patterns trending toward long weekend trips rather than 1-2 week family vacations, thus limiting travel time and distance
- Changes in school schedules resulting in shorter summer breaks, thus limiting travel time and distance
- A doubling in ticket prices over the past 8 years - as an example, the Historic Tour was priced at $4.50 in FY 1995 and $9.00 in FY 2002
- By the mid-nineties, capacity for the flagship cave tours was reduced from 240 to 120 visitors per tour to improve visitor experience



The drop in visitation at Mammoth Cave National Park is similar to the visitation decreases experienced at other National Park Service administered caves. The following National Park Service units experienced similar declines from FY 1995 to FY 2002: Wind Cave (12.5%), Carlsbad Caverns (19%), Jewel Cave (15%) and Oregon Caves (21%).

Current Park Operations

This business plan differentiates between two types of expenditures: Operations & Maintenance, and Investments. Operations & Maintenance requirements are those funds needed to carryout everyday operations at a park unit. Some examples include annual payroll costs, janitorial operations, and managing a telecommunications network.

On the other hand, investments are significant one-time costs that parks incur in order to fix current problems or provide for future park development. Investments may include projects such as a resource inventory necessary to establish a credible baseline before beginning a monitoring program as well as constructing a new building. This section of the plan focuses on the Operations & Maintenance activities of the park. In order to describe park operations for this business plan, park activities were divided into five functional areas, which describe the five areas of business for which the park is responsible. The five functional areas are:

- Resource Protection
- Visitor Experience & Enjoyment
- Facility Operations
- Maintenance
- Management & Administration

These are then further broken down into 35 programs that more precisely describe park operations. Programs are general in order to cover a broad suite of activities that should be occurring in the park.

The next component of the business planning process is the completion of a detail sheet for each program. These forms describe the day-to-day activities occurring in the park and the totality of financial need associated with them.

Statements of work are developed to describe the suite of activities encompassed by the program. Then operational standards are generated to describe the duties and responsibilities required to meet the critical functions of the program as stated in the statement of work. These standards are then used to determine the total financial resources required to perform the standard tasks of the program. The final step is to compare current park activities to the operational standards to identify the gaps between required and available resources.

The following pages discuss each of the functional areas in detail.

Resource Protection: encompasses all activities related to the management, preservation and protection of the park's cultural and natural resources. Activities include research, restoration efforts, species-specific management programs, wild land fire management, archives and collections management, historic site protection, and information integration activities.

Visitor Experience & Enjoyment: includes all park activities directly related to providing visitors with a safe and educational experience while at the park. It includes all interpretation, visitor center management, interpretive media, in-park concessions management, fee collection, and visitor safety services.

Facility Operations: includes all activities required to manage and operate the park's infrastructure on a daily basis. Buildings, roads, trails, utilities, and campgrounds require a range of operational activities from basic sanitation to snow plowing to water testing.

Maintenance: includes activities directed solely to prolonging the life of park assets and infrastructure through substantial repair, replacement or rehabilitation of park assets, such as buildings, roads, trails, utilities, fleet vehicles, and equipment.

Management & Administration: encompasses all park wide management and administrative support activities. It includes all park communications and external affairs activities, park level planning, human resource management, information technology, park leadership, and financial management.

Resource Protection

Eyeless cave fish are among the many creatures specially adapted to the park's diverse habitats.

Mammoth Cave National Park was designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site in 1981 and an International Biosphere Reserve in 1990. Resource protection at the park is paramount, encompassing activities related to the management, preservation, and protection of the park's cultural and natural resources. This functional area includes responsibility for protecting the world class cave resources, 31 miles of river, and woodlands rich in history and diversity. Overall, resource protection constitutes 17% of total park expenditures with a spending level of $1.3 million in FY 2002. The total shortfall for this functional area is $808,700 and 15.4 FTE.

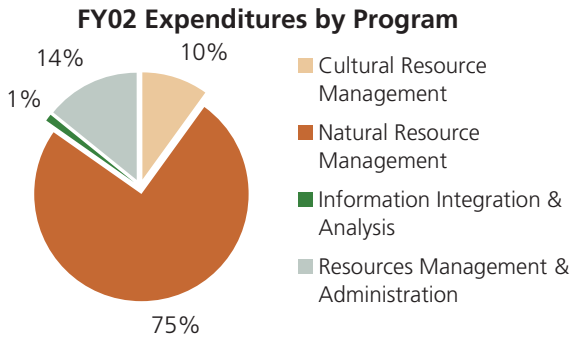
The park is unable to adequately monitor, preserve, protect, and maintain critical natural and cultural resources that have been negatively affected by vandalism, disturbances, illegal activities, and a lack of maintenance. Two additional law enforcement FTE are needed to effectively monitor sensitive plant communities, cave entrances, and archeological sites.

This functional area includes responsibility for protecting the world class cave resources, 31 miles of river, and woodlands rich in history and diversity. Overall, resource protection constitutes 17% of total park expenditures with a spending level of $1.3 million in FY 2002.

Natural Resource Management

This program includes ecological monitoring, research, restoration efforts, species-specific management initiatives, wildland fire management, National Environmental Policy Act (NEPA) management, and general resource protection. This program is also responsible for managing the 12 threatened and endangered species inhabiting the park in a manner that facilitates their recovery. This program had the second largest deficit of all programs, totaling $355,838. Natural resource management has accomplished much in the past ten years following the establishment of the Science and Resource Management (SRM) Division in the early 1990s. The Long Term Ecological Monitoring (LTEM) program is an area of recent growth; for a more in depth look at this program, refer to the sidebar located on the next page. The natural resource management program has also greatly extended its reach to the community and abroad in the form of partnerships. The National Speleological Society restores degraded cave ecosystems, and Bat Conservation International monitors bat habitat parameters. Western Kentucky University is another key partner, providing a crucial research function for the park in relation to hydrological, geological, biological, and air quality efforts. The Cumberland Piedmont Vital Signs Network, another key component of this program, was established by the NPS to identify and monitor the resources of 14 parks in the region, including Mammoth Cave National Park.

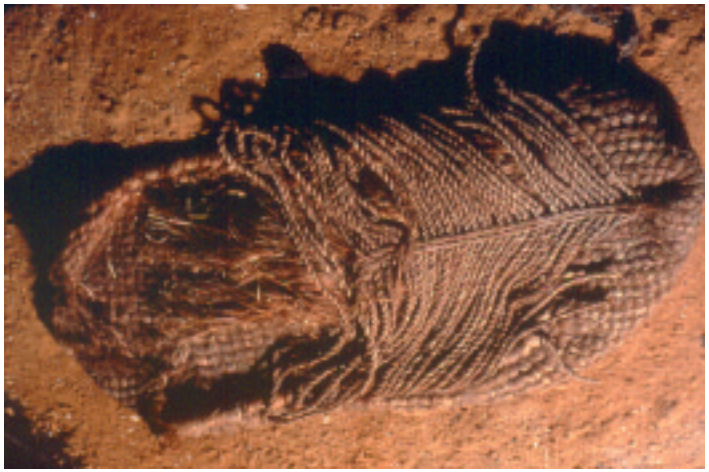
The natural resource management program has been successful on many fronts, but currently lacks 8.3 FTE. Resource management specialists are needed to research



Total Required		Available		Shortfall	
FTE	Funds	FTE	Funds	FTE	Funds
29.15	$2,100,913	13.8	$1,292,213	15.35	$808,700

exotic flora and fauna, act as a liaison between SRM and the Interpretive Division, manage the reintroduction and restoration of extirpated species and habitats, and promote wise land use within the biosphere reserve. This program also requires a Learning Center research coordinator to manage and encourage additional research, and a wildlife biologist to monitor fauna that are not components of the LTEM program.

Cultural Resource Management
The principal objective of cultural resource management is the preservation of significant cultural resources. Cultural resources include prehistoric and historic archeological sites, historic structures, and museum items. A comprehensive cultural resource management program centers around three primary activity areas:
1) identification, inventory, and evaluation of cultural resources; 2) legal and regulatory compliance and planning associated with the management of resources; and 3) stewardship to ensure long-term preservation.



Mammoth Cave is a unique repository of cultural patrimony for the south central Kentucky region.

Currently, this program operates at a significant deficit of $260,487, one of the highest program percentage deficits in the park. Cultural resources at the park include 1,008 identified archeological sites, over 150,000 museum objects and specimens, 74 listings on the List of Classified Structures, 30 National Register of Historic Places listings, and ethnographic resources. For almost two decades, program activities have been carried out by either the sole cultural resource management specialist or cooperators and volunteers within all of the professional cultural resource disciplines. Proper preservation of these cultural resources is not being performed due to the lack of resources, thus 3 additional FTE are required to fund a curator, an archaeologist, and a cultural resource technician.

Information Integration and Analysis
Responsibilities in this program include the development and maintenance of a Geographic Information System (GIS). This program is rather small, but is significantly underfunded by 90%, the highest percentage among the programs, and a dollar shortfall of $144,910. The program needs additional equipment to meet increasing technological advances in GIS, as well as a geographer to assist with GIS themes and databases. Additional funds will also provide for GIS tasks such as mapping of utilities, trails, rare and endangered flora and fauna communities, and lesser caves.

Long-Term Ecological Monitoring (LTEM)

The Mammoth Cave National Park Long-Term Ecological Monitoring (LTEM) program is one of 11 "prototype monitoring" programs in the NPS. Full program funding started in FY 2002. The park receives $461,000 per year allocated specifically to the LTEM program. Mammoth Cave National Park was selected as a prototype to develop and test methods for ecological monitoring in parks with cave and karst natural resources. The purpose of the LTEM program is to provide park resource managers with science-based status and trend information to support the NPS mission of conserving park resources.

The LTEM program is tasked with developing, testing, and implementing statistically valid long-term monitoring protocols to detect changes in the condition of diverse park resources, such as water, cave river organisms, specific vegetation communities, cave crickets, mussels, cave air, bats, and fish, among others.

Visitor Experience and Enjoyment

The Park's interpretive activities are designed to inspire wonder and exploration.

Visitor experience and enjoyment constitutes 29% of total park expenditures with a spending level of $2.2 million in FY 2002. The total deficit for this functional area is $1 million and 13.1 FTE.

This functional area is comprised of eight interrelated programs offering an array of services to park visitors from interpretation and education to visitor safety services and visitor center operations. The park staff involved with these programs work most directly with the visitors and strive to achieve safe and educational experiences. Visitor experience and enjoyment constitutes 29% of total park expenditures with a spending level of $2.2 million in FY 2002. The total deficit for this functional area is $1 million and 13.1 FTE.

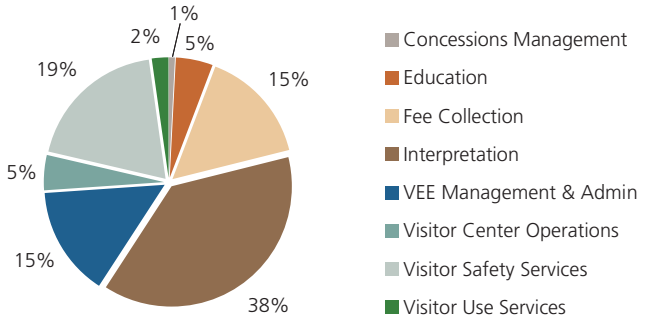
Interpretation

Visitors must take a guided tour to enter Mammoth Cave. Formal interpretive cave tours are presented year round, and in FY 2002, 395,521 visitors participated in 6,036 tours. Interpretive guides conduct 12 different types of cave tours ranging from 45 minutes to 6½ hours. The two flagship tours are the Historic and Frozen Niagara. The Historic tour focuses on man's use of the cave while the Frozen Niagara tour explains the cave from a geological standpoint, educating the visitor on the karst ecosystem and how the cave formed.

The interpretive program provides audio visual presentations in the Visitor Center as well as other surface activities such as auditorium talks, conducted nature hikes, illustrated talks at the campground amphitheater, and children's programming. Other interpretive media such as wayside exhibits are provided to visitors on front country trails.

Interpretation is the largest program within the visitor experience and enjoyment functional area. It currently expends $844,682 of available funds and accounts for 27.4 of the 59 FTE available. Fee demo revenue funded 33% of this amount in FY 2002. However, having lost guides and supervisory positions in the last 4 years, this program needs an additional 5.5 FTE and $289,631 to meet its objectives.

Visitor Experience & Enjoyment
FY02 Expenditures by Program



Total Required		Available		Shortfall	
FTE	Funds	FTE	Funds	FTE	Funds
72.1	$3,228,639	59	$2,218,174	13.1	$1,010,465

The lack of these positions is causing staff scheduling difficulties for cave tours and reducing the amount of coaching and training that guides need to do their jobs.

Education

Since its inception in the 1970s, the environmental education program has expanded to support curriculum-based scientific learning for more than 20,000 students each year. Programs are offered at the park and in schools for both students and teachers. Training teachers is a primary strategy for expanding the program's reach. The program has lost momentum in recent years due to the loss of four permanent positions, replaced by seasonal employees, leading to increased training costs and a loss of consistency and experience within the program. An additional position is required in order to increase the park's education and outreach capabilities.

Visitor Safety Services
The Division of Law Enforcement and Emergency Services strives to ensure a safe and crime-free experience for everyone within park boundaries. Law enforcement rangers manage a high workload associated specifically with visitor safety issues. In FY 2002, 977 crimes were investigated; emergency medical services were required for 47 incidents; and 16 search and rescues were initiated. The division also manages the structural fire program, and coordinates with local jurisdictions.

The law enforcement staffing level does not match the visitor safety related activity at the park. The result is a compromise of ranger safety, creating stressful situations and scheduling problems with only one ranger on patrol during certain shifts, and the inability to patrol roadways, trails, and riverways as frequently as needed. The business plan analysis shows a deficit of 3.8 FTE and $354,126 (excluding Job Corps requirements discussed in the sidebar) for this program.

Designed for a daily capacity of 1,500 visitors, the Park's Visitor Center now serves more than 4,000 on its busiest days.

Other Visitor Services
The Visitor Center is the hub for visitor inquiries and serves as the departure point for all cave tours. Designed for a maximum of 1,500 visitors daily, the existing Visitor Center experiences daily visitation of more than 4,000, and the limited space is used for an information desk, ticket collection area, bookstore area in partnership with Eastern National, and small theatre showing two short videos. There is little room for interpretive exhibits, and park staff looks forward to designated exhibit space in the new Visitor Center planned for construction in 2005.

Fee collection is a key activity with approximately $3.3 million in cave tour and campground fees collected annually. With only 31% of cave tour visitors making advanced reservations through the online or telephone system, the Visitor Center fee collection area processes the majority of the 132,076 (FY 2002) transactions per year. Fees collected by the park are an important source of funds in support of essential visitor services projects, such as additional cave tours and the renovation of the Visitor Center.

Great Onyx Job Corps Center

Job Corps is the nation's largest job training program for at-risk youth ages 16-24. Of the 118 Job Corps centers, three are located in National Park Service units: Mammoth Cave, Harpers Ferry, and Great Smoky Mountains. While located in National Parks, these centers are managed by the NPS Office of Youth Programs with funds from the Department of Labor. The center at Mammoth Cave National Park is located in the northwest corner of the park and has a capacity of 214 students.

The park is reimbursed for law enforcement and wastewater treatment provided to the center. In FY 2002, $127,889 was received for two law enforcement park rangers and $38,200 for a utility systems operator. An analysis of financial data revealed that $334,681 is required to support Job Corps activities, leaving a deficit of $168,592 that is not currently reimbursed:

- Reimbursements did not cover the law enforcement effort expended on 71 crimes investigated at the center in FY 2002. The required resources for law enforcement are $257,344, and reimbursements cover only 50% of these costs.
- Park managers have proactively pursued solutions to management issues with the center. The time spent in negotiations is paid out of the park's base budget and requires $29,393 for labor costs.

Reimbursement levels adequately cover the labor needs for the operation of the center's wastewater system. However, overdue repairs and a testing and shower facility, estimated to cost $190,000, are required by July 2004 to meet State of Kentucky and NPS code requirements.

Facility Operations

More than 350 acres of grounds are tended on a regular basis.

Facility operations cover the day-to-day activities associated with buildings, campgrounds, grounds, janitorial, roads, trails, transportation system and fleet, utilities, and the management and administration activities required to support these programs.

$1.6 million and 26.7 FTE are currently available for facility operations. However, this functional area accounts for 30% of the park's total funding shortfall, and is in need of an additional $1.4 million and 25.1 FTE.

While all facility operations programs are suffering from funding shortfalls, the areas of greatest concern are roads and trails, grounds, and janitorial operations.

$1.6 million and 26.7 FTE are currently available for facilities operations. However, this functional area accounts for 30% of the park's total funding shortfall, and is in need of an additional $1.4 million and 25.1 FTE.

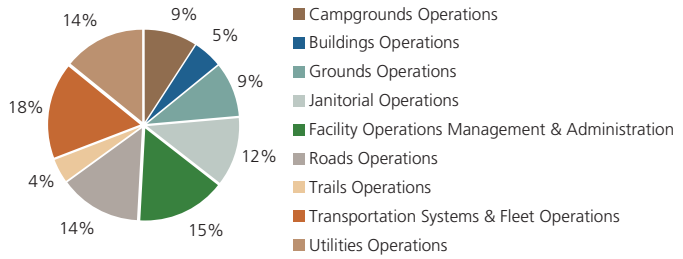
Roads and Trails

The park manages 47 miles of paved roads, 27 miles of unpaved roads, 16 acres of paved parking areas, and 1.5 acres of unpaved parking areas. Activities include management of road signs, snow removal, striping, clearing rock falls, and removal of downed trees. Roads operations use 2.6 FTE, and an additional 0.4 FTE and $29,090 would return this program to full capacity.

Trails operations include such activities as signage, vegetation and tree removal, obliteration of social trails, minor re-routes, and litter control. These activities are required for 73 miles of horse, biking, and hiking trails, and 15.5 miles of developed cave trail.

Only one employee works full-time on trails operations in the park. As a result of the staffing shortfall, little effort is expended on backcountry trails. Visitor satisfaction is declining and safety concerns are growing as a result of problems with erosion, inadequate signage, and social trail development. Currently, $65,728 is available to this program area. However, $369,582 and 8.3 FTE are required to accomplish park needs.

Facility Operations
FY02 Expenditures by Program



Total Required		Available		Shortfall	
FTE	Funds	FTE	Funds	FTE	Funds
51.82	$2,978,992	26.68	$1,602,997	25.14	$1,375,995

Grounds

Grounds operations staff work to ensure the 355 acres in developed areas are in good condition, including roadsides, sidewalks, areas around picnic sites, cave entrance areas, and 14 cemeteries.

One of the primary results of funding shortages is a decline in the quantity and quality of mowing and trimming. For example, since FY 2002 roadsides are not mowed to the tree line - traditionally the park standard.

Grounds operations expenditures were $152,273 and 2.5 FTE in FY 2002. However, to adequately do the job, $341,145 and 5.3 FTE are required. One benefit of additional resources could be a dedicated grounds crew, thus eliminating the existing need to remove employees from

other regular duties to aid in the accomplishment of grounds operations needs.

Janitorial
Janitorial services are provided for visitor and non-visitor use facilities located on the surface and in the cave. The upkeep of various restrooms, parking lots, picnic areas, buildings, roadside pull offs, boardwalks, and cave entrances places pressure on the small janitorial staff, and, as a result, the quality of services is compromised greatly in the non-visitor use buildings.

Janitorial operations cost the park $190,185 in FY 2002. However, $362,076 is required to operate at full capacity with an increase of 3.6 FTE above current levels. Additional funds could be used to hire permanent janitorial staff to replace the existing crew of temporary and seasonal staff.

The park maintains 111 campsites in Headquarters Campground alone.

Other Facility Operations
Transportation systems and fleet, building, campgrounds, and utilities operations combined require an additional 10.3 FTE and $553,875 for adequate operations.

Transportation systems and fleet operations program include two diesel powered car transport ferries that cross the Green River and provide access to the north side of the park. Ferry operating hours have decreased in recent years, and additional funds would allow for longer operating hours.

Buildings operations for 106 park structures encompass gutter and downspout cleaning, interior touch-up painting, rodent and pest control, and minor plumbing and electrical repairs. Additional resources would allow for proactive response to building operating needs; currently response is reactive.

Campgrounds operations are required for three developed campgrounds and 15 backcountry camping sites. Activities range from janitorial services and site drainage problems to visitor check-ins and general monitoring of campground activities. Additional resources are required to allow for more frequent attention to all campground areas, especially backcountry.

Utilities operations involve water, electric, and wastewater systems in the park. The program requires $322,696 and 2.6 FTE for optimal operation. The additional $96,258 and 1.3 FTE above available funding levels would be dedicated to the cave electric system to more frequently monitor the system's condition and to replace lights on a regular basis.

Environmental Leadership

Mammoth Cave National Park is a leader in environmental innovation and sustainable practices. The selection of Mammoth Cave as a NPS Center for Environmental Innovation (CEI) in 2000 is testimony to the dedicated efforts of the park's managers, employees and concessionaires.

The park has established an Environmental Leadership Committee to support its efforts and status as a CEI. This committee embodies park management's deep commitment to an environmentally focused culture within its regional community. As stated in the 2002 Strategic Plan for Environmental Leadership, park management has taken steps to educate staff, visitors, neighbors, partners, and concessionaires on environmental leadership principles and planning.

Sustainable practices implemented include converting all park vehicles and equipment to alternative fuels; sustainable building design for all construction and rehab projects; use of recycled lumber for boardwalks; and close coordination with the concessionaire, Forever/NPC Resorts, LLC, to implement a variety of recycling, alternative fuel, and other "green" programs.

Maintenance

One of the park's many scenic roadways.

With current maintenance activities supported by only $394,127 and 6.3 FTE, it is not surprising that the park has difficulty accomplishing all maintenance needs in the park.

Maintenance is complementary to facility operations. However, rather than day-to-day activities, maintenance prolongs the life of the parks assets. It specifically highlights the needs of buildings, roads and trails, utilities, transportation systems and fleet maintenance, and the management and administration required to support these programs.

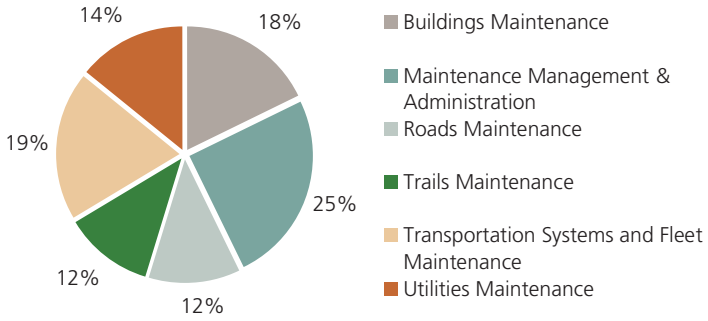
Overall, maintenance programs have a 66% shortfall of $778,443 and 11.9 FTE. With current maintenance activities supported by only $394,127 and 6.3 FTE, it is not surprising that the park has difficulty accomplishing all maintenance needs in the park. Buildings, roads and trails, and management and administration are the areas in greatest need.

Buildings
The function of the buildings maintenance program is to prolong the life and improve the interior and exterior of buildings and structures. The park's current building inventory totals 148 structures, 106 of which are maintained by park staff and include 79 regular buildings, 19 historic structures, and 8 housing units. The park's concessionaire maintains the buildings associated with hotel operations.

Buildings maintenance includes everything from painting and roof replacement to HVAC system repairs and weatherproofing. Aging infrastructure and the lack of preventative maintenance is shortening the useful life of park assets. With a program shortfall of 78%, 4 FTE and $251,114 are needed to supplement the 1 FTE and $70,009 in available funds. Additional funds are needed to hire a carpenter, electrician, and maintenance mechanic.

Roads and Trails
Maintenance is required on 47 miles of paved roads, 27 miles of unpaved roads, 16 acres of paved parking areas, and 1.5 acres of unpaved parking areas. Activities include

Maintenance
FY02 Expenditures by Program



Total Required		Available		Shortfall	
FTE	Funds	FTE	Funds	FTE	Funds
18.18	$1,172,570	6.3	$394,127	11.88	$778,443

chip and seal, asphalt resurfacing, gravel surface grading, ditch cleaning and dragging, road shoulder maintenance, culvert replacement and repair, hazardous tree management, and drainage issues. The 0.9 FTE dedicated to roads maintenance is insufficient to accomplish required maintenance to extend the life of the roads. Obvious signs of disrepair include potholes, surface cracks, eroded road shoulders, and deteriorated culverts. A total of 3.1 FTE and $185,668 are needed to provide funds for proactive, preventative maintenance.

Trails located both above and below ground require cyclical maintenance. The trails inventory includes 73 miles of horse, hiking, and biking trails; and 15.5 miles of developed cave trail. Those funds that are available are used to maintain front country trails. As a result, little backcountry trails maintenance work is performed. Three or four times

each year various volunteer groups come to the park and assist with trails maintenance work such as hauling gravel for tread repairs and removing encroaching vegetation. However, few of the 59 miles of backcountry trails receive attention, and the work not covered by volunteers is left undone. Many trails are in a state of disrepair and erosion and drainage problems are apparent. Total required resources of 3.1 FTE and $176,446 are needed to fund a regular trails crew.

Management and Administration
The management and administration program encompasses oversight for all park maintenance activities, including general supervision, human resources, training, budgeting, and support duties associated with all facility maintenance programs. A large portion of this effort involves the technical work needed to complete long and short-range project planning, the development of construction documents, compliance, and construction management. This work requires input from employees with expertise in trades, administration, and project planning. Existing expertise in these areas is not sufficient to cover all park needs especially as the maintenance backlog increases and the subsequent need for future planning efforts grows. To supplement an existing 1.6 FTE and $98,898, an additional 2.8 FTE and $210,706 are needed. These additional resources would decrease the current use of costly architect and engineering contractors and provide a more consistent source of technical expertise in the park.

Sloan's Crossing Pond Walk is the result of hours of volunteer labor.

Transportation and Utilities
Regular maintenance is required to prolong the life of the fleet of 41 vehicles, two diesel powered ferries, and fueling station. Vehicles are leased from the General Services Administration (GSA), and maintenance and vehicle replacement is done as per the GSA schedules. Alternative fuels are used for all vehicles and both ferries, and the fueling station in the park is an important component of the environmental leadership initiative as alternative fuels are not readily available outside the park.

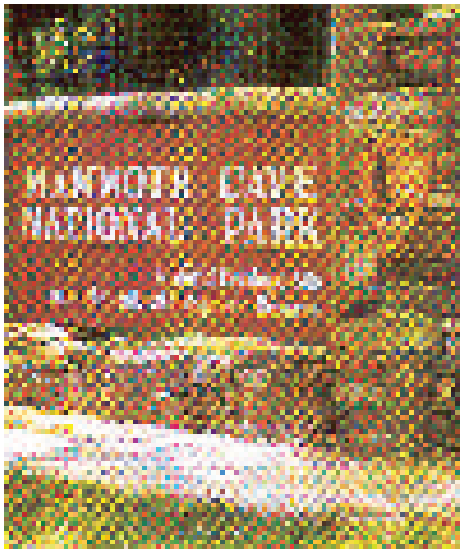
Utilities maintenance involves water, electric, and wastewater systems. The program is small and much of the maintenance is handled through utility contracts. However, $35,395 in additional resources would be dedicated primarily to the cave electric system. With the cave electric system project underway, it will be important to properly maintain this $6 million investment.

Annual Condition Assessment

The Annual Condition Assessment, a component of the comprehensive Asset Management Process, provides a status of park assets and answers the following questions: How much would it cost to replace each asset? How much would it cost to repair each asset? What is the condition of each asset on a scale of good to serious?

Mammoth Cave National Park has an inventory of 590 assets including everything from roads, trails, and cave entrances to buildings and utility systems. The Annual Condition Assessment process has been completed on all assets except for NPS owned and operated buildings.

The deferred maintenance cost for assets (excluding buildings) is $68.5 million, and the current replacement value is $132.7 million. These two values are used to generate a Facility Condition Index (FCI), the ratio of deferred maintenance cost to the current replacement value. An FCI in excess of 0.50 indicates that the assets are in extremely poor condition, and with an FCI of 0.54, Mammoth Cave National Park has one of the worst FCIs in the southeast region.



Entry to Mammoth Cave National Park.

The analysis of this functional area identified a staffing and funds deficit. Required staffing levels were 31.4 FTE, a 40% increase over the FY 2002 staffing level, and required funds totaled $2.7 million, a 27% increase over the $2.1 million available.

Management and Administration

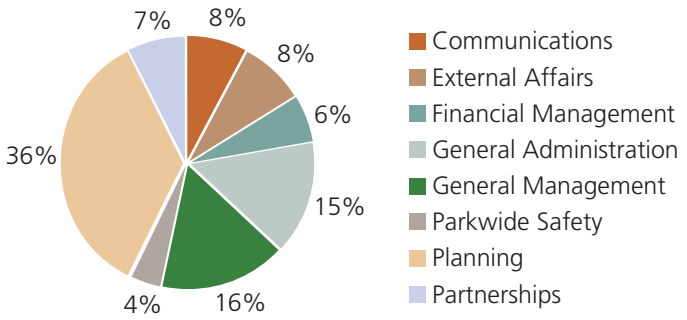
Management and administration at Mammoth Cave National Park encompasses the parkwide leadership activities of the superintendent and the division chiefs, as well as the administrative and human resources functions that provide support for all park employees and operations. In FY 2002, the number of park staff dedicated to management and administration work totaled 22.4 FTE. The funds for this functional area totaled $2.1 million, which represented 28% of the park's total operating funds.

The analysis of this functional area identified a staffing and funds deficit. Required staffing levels were 31.4 FTE, a 40% increase over the FY 2002 staffing level, and required funds totaled $2.7 million, a 27% increase over the $2.1 million available.

General Management

The task of park leadership is carried out by the superintendent, deputy superintendent, and division chiefs, and is outlined in the General Management Plan. In addition to parkwide decision-making, the management team is responsible for employee development and personnel management. The management team and the human resources staff work together to provide employees with career development opportunities and human resources support and counseling. The human resources staff serves as a Servicing Personnel Office (SPO) for Mammoth Cave National Park and Abraham Lincoln Birthplace National Historic Park. As mentioned in the Job Corps sidebar in the Visitor Experience and Enjoyment section, general managerial time is required to support Job Corps. Funds for general management activities totaled $347,082 in FY 2002. A Human Resources Officer position is currently vacant and is required to improve support services for employees, resulting in an annual funding shortfall of $67,662.

Management & Administration
FY02 Expenditures by Program



Total Required		Available		Shortfall	
FTE	Funds	FTE	Funds	FTE	Funds
31.4	$2,723,233	22.4	$2,139,007	9.0	$584,226

General Administration and Financial Management

These two programs are critical to efficient park operation. General administration includes clerical, procurement, and property management activities. Financial management for each division encompasses a range of activities that include budgeting, submission of funds requests, and expenditure tracking. In FY 2002, funds for these two programs totaled $446,717, or 21% of the total management and administration expenditures. The analysis of these two programs identifies a combined shortfall of $109,922 due primarily to two vacant administrative positions and increased supply expenditures required for the entire park. In recent years, warehouse supplies have been limited, re-stocking has been delayed due to lack of funds, and clerical tasks are added to the duties of higher graded employees because vacant positions have not been filled.

Planning

Management for this program is responsible for planning and coordinating projects at a parkwide level and ensuring that they meet environmental compliance, and for the preparation of park strategic and annual performance plans. This program also assists with local, state, and regional planning efforts and coordinates activities with a number of external agencies and organizations. Funds for planning activities totaled $757,929 in FY 2002. An $86,784 shortfall is due to additional time needed for an engineer as well as for the addition of an engineering technician. These two positions are needed for various activities which are not currently being performed to standard, such as facility inspections, project planning, project inspection and supervision, Environmental Management System (EMS) support functions, as well as support for a variety of parkwide implementation plans.

Mammoth Cave National Park also performs some management and administration functions for nearby Abraham Lincoln Birthplace National Historic Site.

Communications

The communications program includes all of the park's communications and information technology expenditures. In FY 2002, funds for this program totaled $168,848, or 8% of the total management and administration expenditures. Analysis of this program identifies the largest shortfall within the management and administration functional area: $248,948, or 43% of the total shortfall. This is primarily due to the need for 5 dispatch positions, as the park currently has no dispatch capability. Dispatch operations at the park would provide a 24-hour, 365-day communications center. This center would serve as a point of contact to manage multi-channel radio communications between federal and state agencies during significant field incidents, and would provide emergency assistance to law enforcement staff.

Other Management and Administration

The external affairs, parkwide safety, and partnerships programs had a combined funding shortfall of $70,913. These three programs are all operating close to standard, thus are not major areas of operational concern for the park.

Partnerships

Partnerships are a major area of focus at Mammoth Cave National Park. More than 70 partners collaborate with park staff and are crucial for protecting park resources both above and below the surface.

- Universities provide academic expertise in research, restoration projects, educational programs, archival projects, and data analysis. Western Kentucky University, University of Kentucky, University of Louisville, and Tennessee Tech are some of the primary partners.
- Cave Research Foundation volunteers contributed more than 10,000 hours in FY 2002, exploring, surveying, mapping and inventorying Mammoth Cave, plus 200 small caves within the park.
- Kentucky Clean Fuels Coalition helped the park and concessionaire acquire grants for fueling stations for their alternative fuel fleets (ethanol, biodiesel and propane).
- For ten years, Earthwatch has organized teams to assist archeologists inventory and catalogue historic and prehistoric artifacts along three miles of Mammoth Cave passages.
- The National Speleological Society committed its labor to remove creosote timbers and boardwalks (circa 1930) from the cave's river passages.

Financials

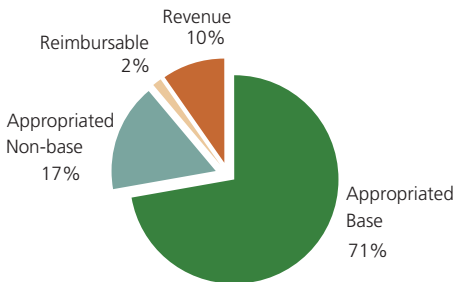
Summary Financial Statement

Total expenditures in FY 2002 were $7.6 million and 128.2 FTE. The majority of expenditures are supported by $5.5 million in appropriated base funds, 72% of available funds.

The summary financial statement provides a comprehensive breakdown of expenditures for all functional areas and programs so that a parkwide status of funds can be determined.

Total expenditures in FY 2002 were $7.6 million and 128.2 FTE. The majority of expenditures are supported by $5.5 million in appropriated base funds, 71% of available funds. Appropriated non-base funds are the second largest fund source, $1.3 million or 17% of available funds. The use of appropriated non-base funds is concentrated in the natural resource management program for LTEM use and in the planning program for activities associated with parkwide investments. Revenue is used to fund 10% of expenditures with the bulk expended to support fee collection and interpretive activities. Finally, reimbursable funds (e.g. interagency agreements) are not a large source of funds and are used for only 2% of expenditures.

FY02 Expenditures by Fund Source



FY02 Required Funds by Functional Area

The summary financial statement provides a powerful comparison of total available to required resources. It includes both FTE and funding requirements, and shows a deficit in all areas. The distribution of a 37% funding shortfall of $4.6 million dollars and 74.6 FTE is clearly illustrated.

Facility operations and maintenance have a combined shortfall of $2.2 million, almost half of the park's total funding deficit. The majority of programs are operating with a shortfall in excess of 50%, and trails and buildings have shortfalls in excess of 70%. Insufficient operations and disrepair have become difficult to ignore and costly to repair.

Resource protection is a driving force behind the existence of the National Park Service, and a lack of funds is negatively impacting all programs. With a funding shortfall of 39%, protection activities are minimal and preservation, especially of cultural resources, is particularly limited.

Visitor experience and enjoyment has a $1 million shortfall, 69% of which is in the two largest programs: interpretation and visitor safety services. Such significant shortfalls in these critical visitor services pose challenges to providing an educational and safe atmosphere at the park.

Management and administration is a large functional area in terms of available funds, but has the smallest shortfall of 22%. Communications needs a more than doubling of resources, justified through the addition of a dispatch system that would benefit parkwide communication and safety.

	REQUIRED		AVAILABLE						SURPLUS/(DEFICIT)	
			APPROPRIATED		NON-APPROPRIATED		TOTAL			
FUNCTIONAL AREAS AND PROGRAMS	FTE	Funds	Base	Non-base	Reimbursable	Revenue	FTE	Funds	FTE	Funds
RESOURCE PROTECTION										
Cultural Resource Management	5.0	$388,764	$96,244	$32,032	$0	$0	1.3	$128,276	(3.7)	($260,487)
Information Integration and Analysis	2.0	$161,421	$16,210	$301	$0	$0	0.5	$16,511	(1.6)	($144,910)
Resources Management and Administration	2.2	$228,987	$123,524	$12,049	$44,662	$1,287	1.2	$181,523	(1.0)	($47,465)
Natural Resource Management	20.0	$1,321,742	$636,959	$294,332	$29,845	$4,768	10.8	$965,903	(9.2)	($355,838)
Subtotal	29.2	$2,100,913	$872,937	$338,714	$74,507	$6,055	13.8	$1,292,213	(15.4)	($808,700)
VISITOR EXPERIENCE AND ENJOYMENT										
Concessions Management	1.2	$91,366	$21,396	$0	-$20	$0	0.2	$21,376	(1.0)	($69,990)
Education	3.7	$183,137	$104,630	$26	$0	$2,697	2.5	$107,353	(1.2)	($75,785)
Fee Collection	9.3	$381,178	-$1,313	$1,158	$26	$337,084	9.2	$336,955	(0.1)	($44,224)
Interpretation	32.9	$1,134,313	$563,156	$150,052	$266	$131,208	27.4	$844,682	(5.5)	($289,631)
VEE Management and Administration	6.3	$396,443	$315,304	$351	$0	$12,079	5.4	$327,735	(0.9)	($68,709)
Visitor Center Operations	4.2	$131,088	$104,778	$36	$0	$0	4.2	$104,814	0.0	($26,274)
Visitor Safety Services	13.1	$829,945	$315,621	$93,470	$1,143	$13,995	9.1	$424,230	(4.1)	($405,715)
Visitor Use Services	1.3	$81,168	$49,799	$109	$0	$1,121	0.9	$51,029	(0.4)	($30,139)
Subtotal	72.1	$3,228,639	$1,473,372	$245,202	$1,416	$498,185	59.0	$2,218,174	(13.1)	($1,010,465)
FACILITY OPERATIONS										
Campgrounds Operations	7.2	$321,281	$46,835	$57	$0	$98,452	3.8	$145,343	(3.5)	($175,938)
Buildings Operations	3.4	$201,826	$79,117	$0	$0	$3,221	1.4	$82,338	(2.0)	($119,488)
Grounds Operations	5.3	$341,145	$151,458	$124	$0	$691	2.5	$152,273	(2.8)	($188,872)
Janitorial Operations	8.4	$362,076	$166,722	$205	$0	$23,257	4.9	$190,185	(3.6)	($171,891)
Facilty Operations Management and Administration	4.8	$374,873	$222,846	$21,758	$0	$1,855	3.4	$246,459	(1.4)	($128,414)
Roads Operations	3.0	$253,325	$135,540	$88,004	$0	$691	2.6	$224,235	(0.4)	($29,090)
Trails Operations	8.3	$369,582	$64,254	$24	$0	$1,450	1.5	$65,728	(6.8)	($303,853)
Transportation Systems and Fleet Operations	8.8	$432,189	$244,102	$62	$25,052	$782	5.3	$269,998	(3.5)	($162,191)
Utilities Operations	2.6	$322,696	$195,376	$11,909	$15,834	$3,320	1.3	$226,439	(1.3)	($96,258)
Subtotal	51.8	$2,978,992	$1,306,249	$122,144	$40,887	$133,718	26.7	$1,602,997	(25.1)	($1,375,995)
MAINTENANCE										
Buildings Maintenance	5.0	$321,123	$52,205	$3,629	$0	$14,175	1.0	$70,009	(4.0)	($251,114)
Maintenance Management and Administration	4.5	$309,604	$94,756	$2,818	$0	$1,325	1.6	$98,898	(2.8)	($210,706)
Roads Maintenance	3.1	$185,668	$47,112	$187	$0	$0	0.9	$47,299	(2.1)	($138,368)
Trails Maintenance	3.1	$176,446	$43,448	$71	$0	$2,400	1.0	$45,918	(2.2)	($130,528)
Transportation Systems and Fleet Maintenance	0.9	$88,316	$75,698	$287	$0	$0	0.7	$75,985	(0.1)	($12,331)
Utilities Maintenance	1.7	$91,413	$51,953	$3,133	$70	$861	1.0	$56,018	(0.7)	($35,395)
Subtotal	18.2	$1,172,570	$365,172	$10,125	$70	$18,760	6.3	$394,127	(11.9)	($778,443)
MANAGEMENT AND ADMINISTRATION										
Communications	8.3	$417,796	$129,684	$14,812	-$5	$24,357	2.3	$168,848	(6.0)	($248,948)
External Affairs	2.4	$204,445	$172,235	$1,065	$0	$3,923	2.3	$177,222	(0.1)	($27,223)
Financial Management	2.0	$154,979	$132,167	$0	$0	$0	1.8	$132,167	(0.2)	($22,812)
General Administration	6.3	$401,658	$308,316	$5,748	-$75	$560	5.5	$314,550	(0.8)	($87,108)
General Management	5.3	$414,743	$325,908	$16,055	$0	$5,119	5.0	$347,082	(0.3)	($67,661)
Parkwide Safety	1.2	$108,010	$79,945	$2,076	$12	$1,344	1.2	$83,377	(0.1)	($24,633)
Partnerships	2.3	$176,889	$153,266	$643	$0	$3,923	2.1	$157,832	(0.2)	($19,057)
Planning	3.7	$844,713	$194,084	$523,176	$0	$40,670	2.2	$757,929	(1.4)	($86,784)
Subtotal	31.4	$2,723,233	$1,495,605	$563,574	-$68	$79,896	22.4	$2,139,007	(9.0)	($584,226)
Grand Total	**202.7**	**$12,204,347**	**$5,513,334**	**$1,279,759**	**$116,812**	**$736,613**	**128.2**	**$7,646,518**	**(74.6)**	**($4,557,830)**

This financial statement has been prepared from the books and records of the National Park Service in accordance with NPS accounting policies. The resources available reflect the total operations and maintenance expenses incurred by the park during the last complete fiscal year. The resources required represent the funding needed to operate the park while fully meeting operational standards as defined in business plan supporting documentation. Program requirements are presented as a five-year planning tool based on salary and wage tables from the same fiscal year, given current resource inventories, and the current park infrastructure. Changes resulting from one-time projects and capital improvements (e.g. investments) may have a resulting impact on the operational requirements presented.

The value of donated materials and in-kind services is not included as an available resource in the financial summary because these materials and services are not only used for required operations. See page 28 for information on the valuation of work performed by volunteers.

The financial statement presents the available and required resources for the operational activities of the park only. Investment expenditures for capital improvements or other one-time projects are not accounted for in this statement. For information on the park's investment expenditures, see page 30.

Volunteer Analysis

Volunteers In Parks is a growing program at Mammoth Cave National Park.

In FY 2002, 620 volunteers contributed 31,811 hours of service. Using the NPS estimate of $16.05 as a per hour value for volunteer labor, the net benefit was $457,567.

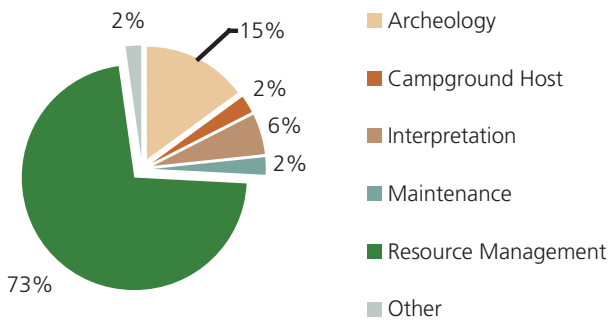
At Mammoth Cave National Park, volunteers play an integral role in supporting the mission of the National Park Service and provide services that enrich all facets of park operations. In FY 2002, 620 volunteers contributed 31,811 hours of service. Using the NPS estimate of $16.05 as a per hour value for volunteer labor, the net benefit was $457,567 after deductions of $8,000 for housing and $45,000 for training, supervision, and other program costs.

Numbers alone do not do justice to the benefits of volunteers. It is through the commitment shown by groups and individuals that the park gains the most. This is best conveyed by highlighting key volunteer activities in FY 2002.

Cave work is difficult and requires long periods in the dark at 54°F. This did not deter the National Speleological Society from contributing more than 2,500 hours removing creosote treated timber from an unused cave boardwalk. Earthwatch volunteers contributed 4,800 hours locating and flagging cultural resources in the cave. Another skilled group of cavers, the Cave Research Foundation (CRF) has been a critical park partner since 1961. CRF pushes the known underground boundaries of the cave system through exploration and mapping that yield vital information and significant discoveries. CRF spent more than 10,000 hours working underground in 2002.

Non-cave related activities play an equally important role in the park. Members of the Sierra Club, the Kentucky Native Plant Society, Target Corporation employees, and the Bowling Green League of Bicyclists demonstrate their commitment through long-term projects such as trails maintenance, identification and transplantation of rare plants, and cemetery restoration. Short-term projects are completed by student, youth, and civic groups including campgrounds and trails maintenance, and providing visitor education.

FY02 Volunteer Hours by Category



In 2002, four artists participated in the Artists-in-Residence program. One provided images for new wayside exhibits and the others shared their work with park visitors and led art activities.

Overall, volunteer activity is concentrated in resource management (73%), archeology (15%), and interpretation (6%). However, as is evident in the activities discussed above, the program is rich with opportunities that would appeal to additional willing volunteers.

Government Performance and Results Act

The Government Performance and Results Act (GPRA) was passed by Congress in 1993 to stimulate a greater degree of accountability from Federal agencies. To implement this act, the NPS has defined four primary mission goals. Each park sets specific performance measures related to each GPRA goal and reports on progress annually.

The graph below provides a link between GPRA goals and the current operations data from the business planning process. Current expenditures and shortfalls for all business plan programs have been allocated to GPRA goals to show how funding shortfalls relate to this NPS initiative.

Mammoth Cave National Park devotes much of its spending to achieve the first two GPRA mission goals. The shortfall in resource preservation (Goal I) indicates that the park lacks sufficient funds to preserve, rehabilitate, and maintain its cultural and natural resources. The shortfall in public enjoyment and visitor experience (Goal II) indicates that the park needs additional operating funds to adequately orient and educate its visitors and convey the historic significance of its resources.

Goals III and IV focus on resource preservation partnerships and organizational effectiveness. In comparison to Goals I and II, a much lower level of operating funds are dedicated to these areas. Performance measures for Goal III are achieved through in-kind contributions of over $1 million from existing resource preservation partnerships that are not shown in the GPRA chart.

GPRA Mission Goals

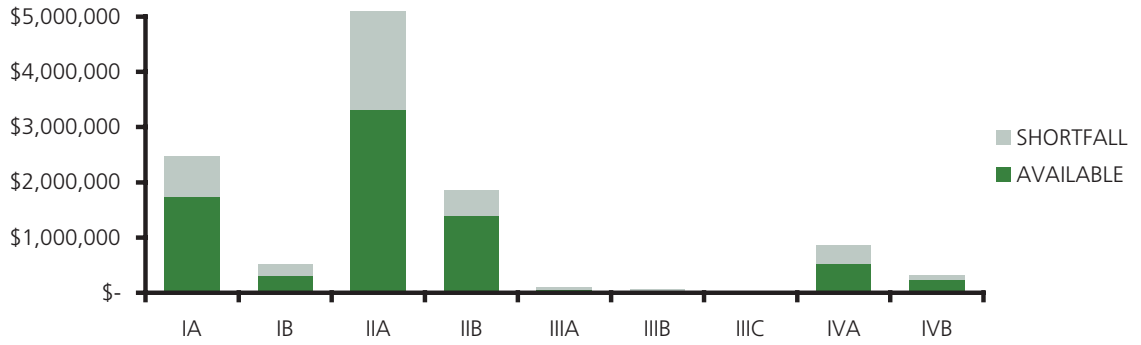
I. Preserve Park Resources
a. Natural and Cultural resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context.
b. The National Park Service contributes to knowledge about natural and cultural resources and associated values; management decisions about resources and visitors are based on adequate scholarly and scientific information.

II. Provide for the Public Enjoyment and Visitor Experience of Parks
a. Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.
b. Park visitors and the general public understand and appreciate the preservation of parks and their resources for this and future generations.

III. Strengthen and Preserve Natural and Cultural Resources and Enhance Recreational Opportunities Managed by Partners
a. Natural and cultural resources are conserved through formal partnership programs.
b. Through partnerships with other federal, state, and local agencies and nonprofit organizations, a nationwide system of parks, open space, rivers and trails provides educational, recreational, and conservation benefits for the American people.
c. Assisted through federal funds and programs, the protection of recreational opportunities is achieved through formal mechanisms to ensure continued access for public recreational use.

IV. Ensure Organizational Effectiveness
a. The National Park Service uses current management practices, systems, and technologies to accomplish its mission.
b. The National Park Service increases its managerial resources through initiatives and support from other agencies, organizations, and individuals.

FY02 Expenditures by GPRA Goal



Funded Investments

EARTHWATCH volunteers record cultural artifacts in the cave.

Funded investments are significant one-time costs that add to the asset base or intellectual capital of the park. In FY 2002, Mammoth Cave National Park spent $531,927 on various investment projects, including the following:

Catalog Cave Cultural Resource Inventory - $15,000
In partnership with Earthwatch, field inventory is conducted in the nationally significant historic section of Mammoth Cave. Over 10,000 prehistoric and historic artifacts and features have been located and documented as part of this multi-year project staffed primarily by volunteers.

Protect Indiana Bat Habitat at Wilson Cave - $16,000
A bat friendly gate was installed at Wilson Cave to prevent disturbance of hibernating Indiana bats (federally endangered) by unauthorized visitors. Indiana bat populations are declining throughout their range, hence the need to prevent intrusions into the few caves that provide the environmental conditions required by this species.

Office Area Renovation - $117,948
A warehouse was renovated to provide office space for the Division of Science and Resource Management and the newly funded LTEM program. The previous office space was too small to accommodate the LTEM program, separated from all other park offices, and located in a deteriorated building.

In FY 2002, a number of investments were in the planning or design phases. The most significant examples are listed here with the estimated net construction cost noted.

Rehabilitate Visitor Center - $6.2 million
The existing visitor services and fee collection facilities were designed for daily visitation not in excess of 1,500 people. However, current daily visitation can exceed 4,000 during peak periods. Fee demonstration revenue is being used to fund this investment, and construction is expected to last from 2005 to 2008.

Mitigate Pollution of Cave from Parking Lot Runoff - $1.3 million
The cave system is sensitive to pollutants that filter down from the surface. Six locations, including the Visitor Center parking area, represent sites where vehicle pollutants concentrate. Oil and grit separator systems will trap pollutants before they seep into the ground.

Reconstruct Water System - $5.1 million
The Caveland Environmental Authority (CEA) will construct and subsequently operate a new water system. At present, the aging water system leaks an estimated 20% of the water purchased. The new system will be more cost effective and will eliminate excess water that drains into the cave system.

Cave Electric System - $6 million
Approximately six miles of cave trails are lit for cave tour activities. Updated infrastructure will bring the electric system into compliance with government regulations. Benefits include the removal of electrical transformers from inside the cave and the installation of energy saving lights that will inhibit the unnatural growth of algae on cave walls. Completion of the project is expected in 2006.

Reconstruct Main Entrance Road - $4.2 million
The main entrance road leading to the Visitor Center will be reconstructed to provide better and safer public access to the park. In addition to road reconstruction activities, the cave tour bus loop will be relocated to resolve congestion and safety issues.

Priorities and Strategies

Operations and Maintenance Priorities

The current operations analysis conducted for this business plan showed a deficit of $4.6 million. This 37% shortfall is significantly compromising the park's ability to carry out its basic mission of preserving resources and providing for public enjoyment. This critical funding shortfall at Mammoth Cave National Park is higher than the average identified for the parks that have participated in the Business Plan Initiative as of August of 2003, and illustrates the continuing urgent need for additional base operating funds. Despite current and planned efforts at the park to raise additional non-appropriated revenue and reduce costs, a substantial increase in base operating funds is the only way to fully finance the proper care and management of Mammoth Cave National Park.

Basic Operations for Existing Facilities
FTE: 20.1
Total Cost: $1.1 million
The facility operations and maintenance programs have a shortfall of 37 FTE and $2.2 million. While all programs in these two functional areas have a funding shortfall, funds are highest priority for those programs with the largest deficits: buildings (6 FTE); janitorial (3.6 FTE); and trails (9 FTE). If staffing is restored to a level at which the park is able to properly operate and maintain its assets, the useful life of assets will be extended and the cost of rehabilitation will decline.

In addition, there is a critical shortage of technical facilities expertise at the park. Over the next few years, as many as eight major construction projects will be in various phases of planning, design, and execution. In addition, as many as 30 to 50 minor projects are underway at any given time. At a cost of $80,000, 1.5 FTE is requested to increase the capacity for engineering and other technical expertise, thus decreasing project delays and expensive contracting for these services.

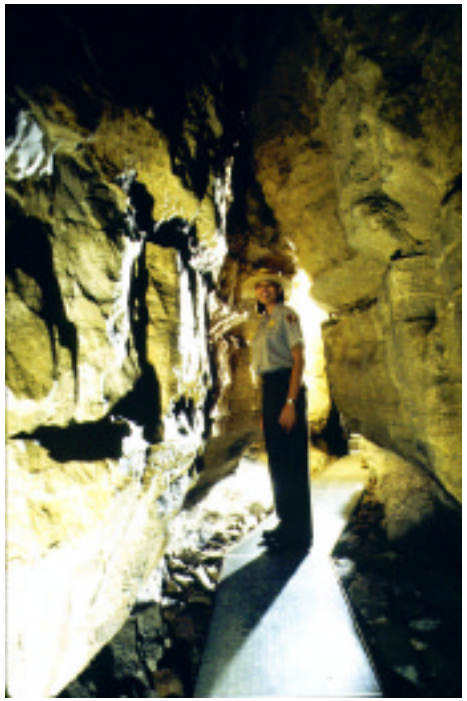
Basic Operations for Visitor Services
FTE: 10.5
Total Cost: $694,000
A high level of importance is placed on the quality of visitor services operations, especially those that involve the transference of knowledge to visitors - interpretation and education.

The interpretive program is supported largely by seasonal staff in the peak summer months. Funds to hire permanent staff would provide the capacity to support interpretive programming year round and decrease recruitment and training costs associated with high volumes of seasonal staff.

Funds are also needed to increase education programs, to promote park-based science, and to develop a cave conservation education program. Benefits of an expanded education program include: new and existing research partnerships leveraged for training, research and technical assistance; the expansion of the existing education programs to include secondary and adult education within the Mammoth Cave Area Biosphere Reserve; and the adoption of best management practices by an additional 50% of local landowners.

Basic Operations for Law Enforcement
FTE: 10.8
Total Cost: $707,500
The Law Enforcement and Emergency Services division is underfunded in its critical areas of responsibility including cultural and natural resource protection and visitor safety services. An additional 5.8 FTE are needed so that law enforcement personnel can adequately provide for visitor safety and resource protection on roadways, front country areas, backcountry trails, and riverways.

If staffing is restored to a level at which the park is able to properly operate and maintain its assets, the useful life of assets will be extended and the cost of rehabilitation will decline.



Park management places a high priority on visitor services.

The Mammoth Cave Hotel, operated by park concessioner Forever Resorts/NPC, LLC.

In addition, the lack of dispatch capability creates a strain on efficiency levels. A dispatch operation would serve to process both incident-related and normal communications between law enforcement park rangers, other staff, and local law enforcement personnel, resulting in more effective response to requests for assistance. An analysis of dispatch requirements reveals a need for 5 FTE and a need for dispatch equipment.

Basic Operations for Cultural Resource Management
FTE: 3
Total Cost: $167,000
Mammoth Cave National Park has a rich cultural history that is impossible to properly protect and preserve with the current staffing situation; there is only one permanent cultural resource management position. Cultural resource management activities are carried out by either the sole cultural resource management specialist or cooperators and volunteers with heavy reliance placed on the cooperative funds arrangement with Western Kentucky University. An additional $167,000 would cover the costs associated with creating the following positions: curator, archeologist, and cultural resource technician.

Tourism Marketing Initiative
FTE: 1
Total Cost: $75,000
Visitation has declined by 21% over the past decade for various reasons. Funds are needed to create and execute a comprehensive marketing program with an emphasis on the shoulder and winter seasons. Marketing efforts would be coordinated with community relations and partnership activities and have spin-off effects on tourism in surrounding communities.

Operations and Maintenance of New Facilities
FTE: 12
Total Cost: $841,000
New or upgraded facilities cannot be utilized to their fullest capacity if adequate funds for preventative maintenance and facility operations do not accompany construction dollars. Major concerns include scheduled construction projects for the Visitor Center, Learning Center, and Park City Heritage Center. Current staffing levels are not adequate and funds are needed for the most basic services that directly support the NPS mission, including fundamental safety, protection, and visitor experience goals.

Human Resources Officer
FTE: 1
Total Cost: $80,000
Funds are needed to hire a human resources officer to assume the responsibilities of classification, employee relations, diversity recruitment, training initiatives, and supervisory duties currently assigned to the administrative officer. Managers and employees are forced to wait beyond reasonable periods of time for the completion of human resources requests.

Concessions Management Specialist
FTE: 1
Total Cost: $86,000
At present, the concessions management function is performed by the Chief of External Programs and Communications as a collateral duty. Administration of all concessions, with a parkwide gross of $3.8 million, requires full-time expertise to ensure proper accounting, high visitor satisfaction, and safe operation of concession activities. The need for a full-time concessions management position has been documented in the park's Position Management Plan and a management analysis conducted by the NPS Southeast Regional Office.

Investment Priorities

In addition to operating and maintenance needs, Mammoth Cave National Park requires significant one time investments to fulfill its strategic mission. Current unmet investment needs total an estimated $56 million in net construction costs (calculated in 2003 dollars). Of those needs, nine high priority investments are discussed here - a total value of $34.8 million.

Green River Ferry Site
$3.7 million
Initially developed in 1934, the Green River Ferry crossing is in need of redevelopment. This investment will reduce congestion, eliminate ferry closures during periods of low river levels, alleviate existing safety problems, enhance ferry operations, improve visitor access to recreation resources including visitors with disabilities, and provide a general renovation of the site.

Visitor Center Exhibits
$1.7 million
Exhibits were removed from the Visitor Center in the early 1970s because they were outdated, and to make room for an expanded cave tour fee collection area. Other than an orientation film and the park newspaper, there are no interpretive media within the complex. Significant park resources and values are not being interpreted to visitors because of the lack of exhibits. This investment would help visitors better understand the park and its resources, as well as how these resources are threatened. In addition, visitors with physical challenges (who are unable to enter the cave) would have the opportunity to gain a perspective of the true significance and scope of the world's longest known cave system.

Primary Cave Trails
$14.7 million
The condition of most cave trails is deteriorating and is generally poor. This investment would reconstruct 43,253 linear feet of cave tour trail within Mammoth Cave and replace the 40 year old steps and handrails in the lower Mammoth Dome area. Trail reconstruction will decrease the degradation of natural and cultural resources and trampling where there is no physical or visible separation between the trail and the natural cave floor. Trail improvements will also improve visitor safety.

Multi-Modal Surface Trail
$1.5 million
In recent years, bicycle traffic has increased in the park, and more families and individuals are seen riding bikes along the roadways. However, no safe, non-technical bike-way exists, creating high levels of concern for visitor safety. The multi-modal surface trail investment entails the construction of a family oriented 10 mile bike trail, mainly on an abandoned historic railway bed. The trail will extend from the park Visitor Center to Park City. Along the route, access would be provided to the Doyle Valley Overlook, the Sloan's Crossing area, the Diamond Caverns facilities, and the planned Park City Heritage Center. It would also connect with existing bike trails in Cave City and Park City.

Cumberland Piedmont Network Learning Center
$1.8 million
Mammoth Cave National Park has committed funds for more than a decade to ensure that Maple Springs Research Center remains an active research and environmental education facility. Its purpose is to serve as a resource center for training, interpretive, and education programs for the public. The current Maple Springs Research Center is the proposed location for the Cumberland Piedmont

Mammoth Cave National Park requires significant one time investments to fulfill its strategic mission. Current unmet investment needs total an estimated $56 million in net construction costs

Green River Ferry.

Network Learning Center, and this investment would allow for an upgrade of these facilities, thus enhancing research and learning opportunities at the park.

Operations Area and Administrative Facilities
$7 million
This investment addresses two goals: the centralization of management staff and the upgrade of existing operations facilities. Management staff have been displaced due to the planned renovation of the Visitor Center. New administrative facilities would centralize operations and administration offices.

Many existing operations facilities were constructed during the Mission 66 development period. Over the past 40 years, the size and function of the staff have changed significantly. Consequently, the existing facilities do not meet the needs of the current park staff. This investment would pay for upgrades to existing operations facilities such as the training center, parking area, fueling station, and office space.

Thousands of visitors use the park's trails each year.

Reconstruction of the Primary Park Roads to Meet Safety Standards
$3.2 million
Two stretches of roadway, both serving as primary entrances into the park, are deteriorating rapidly. The pavement, which was constructed in 1965, has reached the end of its useful life. This investment will move a condition rating of 'poor' to 'good' for these 9 miles of roadway and greatly reduce the current operations and maintenance costs. Improvements to the roadway structure and drainage will also provide greater roadway stability.

Backcountry and Front Country Trails
$866,000
This investment is needed to rehabilitate 44.7 miles of deteriorating trails and to provide better access to backcountry areas. Backcountry trail use has increased substantially over the years to approximately 40,000 users annually. Trails are multi-use with hikers and horse users sharing paths, and also bikers in some locations. Front country trails near the Visitor Center are subject to large volumes of traffic. Heavy use combined with lack of maintenance has left these trails in fair to poor condition.

This investment will also include the construction of a trailhead facility and connector trail north of the Green River Ferry to provide access to 60 miles of multi-use backcountry trails. This project will centralize backcountry access, which is now located in several areas and is a source of confusion to visitors, to one parking lot that is easy to access. This will improve visitor safety and protect sensitive park resources.

Carmichael Cave Entrance
$340,000
Existing concrete steps and handrails at the Carmichael Entrance to Mammoth Cave were installed approximately 70 years ago during the Civilian Conservation Corps era. With more than 35,000 visitors entering the cave through this entrance annually, its deterioration is a major safety concern. This investment will replace the concrete staging area; reconstruct the steps, sidewalk, and airlock at the cave entrance; and replace 200 concrete steps and handrails.

Strategies for Reducing Costs

The management team at Mammoth Cave National Park has formulated the following cost reduction strategies that will result in a more efficient use of existing funds with an emphasis on minimizing program impacts.

Decrease Labor Costs
Estimated cost reduction over the next 5 years: $450,000
Labor costs represent 85% of all FY 2002 expenses and are projected to increase in FY 2003. Annual base funding increases do not keep pace with the rate of increase in labor costs. Management's goal is to reduce labor costs, as a percentage of base budget, to 85% in FY 2004, 84% in FY 2005, and 83% or less in subsequent years.

Four main strategies will be implemented to reduce labor costs: reducing the number of positions, realigning existing staff to areas having the most severe shortfalls, performing a long-term organization structure assessment, and considering contracting for park functions. A broad organizational analysis will be undertaken to predict staff turnover patterns and recommend a future desired organization structure. This analysis will include a 5-year projection of opportunities for potential changes, with turnover in permanent positions as a pivotal factor in implementation. Organizational realignment options will be reviewed as permanent positions become vacant.

Volunteers
Annual benefit: $24,000
The Volunteers In Parks (VIP) program is a critical source of expertise that could be expanded to supplement basic operations. The majority of the benefit from current VIP activity is concentrated in cave related resource management activities, and other areas of park operations could benefit from an increase in volunteer effort. A targeted effort is needed for recruiting skilled labor. Incentives, such as housing and a modest stipend, are important program components. Long-term volunteer commitments have a history at the park, and a core of volunteers who are interested in specific projects, such as horse trail users for trail rehabilitation, will be developed.

Non-cave VIP hours are expected to increase by 1,500 hours over the next two years. Additional funds for VIP reimbursements may be needed from the park base budget (approximately $2,500). A VIP coordinator is already employed by the park and has capacity for strategy implementation.

Establish Park-Based Point-of-Sales System
Estimated cost reduction: $300,000
In FY 2002, Mammoth Cave National Park paid $783,997 through its National Park Reservation System (NPRS) contract for processing 132,076 transactions. This expenditure represents 24% of gross fee revenue collected at the park, an exorbitant amount for the services provided considering that only 31% of all tickets are reserved. 69% of all sales are walk-up and are processed by park staff. NPRS costs could be reduced by as much as 50% by establishing a park-based point-of-sales system for walk-up sales. The implementation of this strategy would result in a reduction of ticketing system fees to less than $500,000 in the first year and less than $400,000 in subsequent years.

Non-Labor Cost Reduction Strategies

It is management's goal to reduce overall non-labor costs by 10% for each of the next two years. Strategies have been formulated for addressing the increasing non-labor costs associated with *training, transportation, and utilities*.

Decrease travel and training costs
Estimated cost reduction: $20,000
Travel costs have increased over the past five years while travel funds have decreased. This has resulted in very restricted training opportunities for park staff, since travel

Non-cave VIP hours are expected to increase.

Annual base funding increases do not keep pace with the rate of increase in labor costs. Management's goal is to reduce labor costs, as a percentage of base budget, to 85% in FY 2004, 84% in FY 2005, and 83% or less in subsequent years.

Cost sharing arrangements are being pursued for the proposed Learning Center and Park City Heritage Center. This strategy has the potential to increase the number of cost-sharing arrangements by 20% over the next five years.

One target for cost reduction is vehicle fleet size.

is frequently required to attend training. A strategy for decreasing tuition and travel costs associated with training is required so that employee development can continue at an acceptable level. Such opportunities exist through better use of the park's Training Center and the expertise of park employees. The Training Center is already equipped with a Technology Enhanced Learning (TEL) system which will be more extensively used for on-site courses. When valuable training and conference opportunities are offered outside the park, a single representative will be sent who can provide training and information sessions upon their return.

Success in decreasing costs will be measured annually by comparing travel expenditures to the previous fiscal year. In addition, it is critical to note the number of employees trained and whether all mandatory requirements were met. The goal is to reduce travel and training costs by 20% from FY 2002 levels while increasing total hours of training by 50%.

Vehicle utilization
Estimated cost reduction: $24,000
The park pays for 41 vehicles, at a cost of $159,800 in FY 2002. Vehicle usage is greatest in the Division of Facility Management, followed by the Division of Law Enforcement and Emergency Services, and the Division of Science and Resource Management. The park has not systematically assessed vehicle utilization and associated costs to identify potential ways to accomplish work while using fewer vehicles. This strategy could transition fleet usage from division or individually assigned vehicles to a pool arrangement resulting in the same operational efficiency while reducing vehicle costs by 15% from current levels.

Utilities
Estimated cost reduction: $24,500
Utilities expenditures have been increasing in recent years to $245,000 in FY 2002, and a utilities reduction strategy could reduce costs by 10%. All utility costs at the park will be analyzed in this effort. An energy audit will be used to determine potential for conservation, and equipment replacement will be done with high efficiency alternatives. Some utility efficiency steps are already planned such as installing technologically advanced lighting inside 6.2 miles of the cave, motion activated lighting inside facilities, as well as infared cutoff water fixtures. Aside from energy, a renegotiation of cell phone and pager contracts along with a decrease in the amount of equipment leased or purchased is expected to yield savings. Additionally, water system upgrades are projected to yield a 20% decrease in costs by 2006 (not captured in the estimate of cost reduction).

Cost-Sharing
Estimated benefit: $20,000
The Science and Resource Management Division has entered into a number of cost-sharing agreements with project funds. Typically, these agreements involve project funds in conjunction with a University partnership and result in a leveraging of funds for labor and equipment costs. Through an analysis of the use and potential for cost-sharing coupled with an understanding of park operational needs, opportunities may exist to further leverage cost-sharing arrangements to meet park management goals. Cost sharing arrangements are being pursued for the proposed Learning Center and Park City Heritage Center. This strategy has the potential to increase the number of cost-sharing arrangements by 20% over the next five years.

Strategies for Increasing Non-Appropriated Funding

The business plan has identified $4.6 million in unmet needs in Mammoth Cave National Park's operational budget, and over $34.8 million in investment priorities. In keeping with the goal of maximizing its impact per federal dollar invested, park management will continue to seek ways to expand its sources of revenue beyond the base appropriation. The following strategies offer promise for increasing the available funds to meet the required resources outlined in the plan.

Establish Marketing Efforts
Estimated annual net benefit: $100,000
Visitation at the park has declined by 21% over the past ten years. It is clear that steps must be taken to increase visitation and public support by reaching out to the local, regional and national community in order to spark further interest in the park's resources as well as to communicate the financial shortfalls illustrated in this business plan. A marketing strategy will be established to reach visitors, local communities, researchers, and elected officials alike, and will lead to enhanced public support through more effective communication of the park's resources, mission and needs.

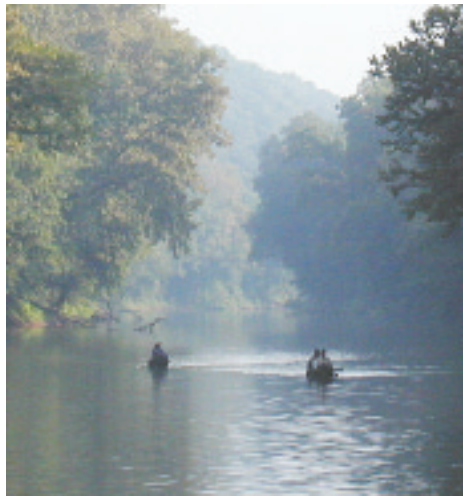
An important component of the marketing strategy is a broadening of relations with concessionaires and local communities. A cohesive marketing effort will build awareness and in turn create a common benefit for the area as a whole. To this end, packaged tours are being considered as an additional source of revenue, and could include a range of offerings such as meals and accommodation through the hotel concessionaire, cave tours, canoe rentals, boat rides down the Green River along with other attractions found outside the park.

Stakeholder awareness will be improved through presentations to partners and user groups on the findings of the business plan and through distribution of the business plan itself. Heightened public awareness will be achieved by improving signage on major roadways such as on I-65, as well as further dissemination of park brochures at visitor welcome stations, rest areas in the region, and at the planned Park City Heritage Center. Further awareness will result from the increased use of advertising media such as television and radio spots and on-site press conferences for special announcements and events. Efforts to increase coverage in publications geared toward senior citizens, campers, bikers, hikers, spelunkers and travelers will be a focus. Increased merchandising efforts through Eastern National will be considered, as well as creating a Mammoth Cave National Park license plate to extend awareness and increase revenue.

Success will be measured by increased visitation and use of campgrounds, responses to visitor questionnaires, and increased support in partnership associated activities. Management plans to commit resources to the development and implementation of marketing initiatives and anticipates an additional income of at least $100,000 per year as a result.

Increase Donation Efforts
Estimated annual net benefit: $20,000
Park management plans to broaden donation efforts to induce greater contribution from the public. Donations will be used for special programs that are not base funded and are high priorities for the park.

Donation boxes have not been well placed in the past, and park management has identified more convenient locations that will better capture the attention of visitors. Donation boxes will have improved signage to educate the visitor as to exactly how their donation will be used in the park. Signage will also be provided throughout the park on major items that were purchased through the use of visitor donations. Park management is considering a gift catalogue as an



Packaged tour offerings including services from local outfitters could be part of a successful marketing strategy.

In keeping with the goal of maximizing its impact per federal dollar invested, park management will continue to seek ways to expand its sources of revenue beyond the base appropriation.

A friends group could provide significant benefits in terms of raising funds, being an advocate on park issues, and providing volunteer support for the park.

Fee Program money funds several projects.

additional opportunity for visitors to make donations for high priority park needs.

The goal is to increase donations to $20,000 in three years, and progress will be measured by comparing future year donations with the FY 2002 donation amount of $3,460. The cost to increase this effort will be minimal, with about $1,000 needed to improve signage and construct additional donation boxes.

Develop a Friends Group
Estimated annual net benefit after 5 years: $100,000
A friends group could provide significant benefits in terms of raising funds, being an advocate on park issues, and providing volunteer support for the park. Many national parks have support groups, including most large national parks with the stature and size of Mammoth Cave National Park. In the past ten years, attempts were made to establish a friends group, but the idea did not gain traction. The park presently has a large number of partnerships and support groups, each with a defined purpose in a particular focus area. One concept is to develop a coalition of existing park support groups which would better connect the common interests of the groups while better supporting the needs of the park. For example, the park has a large volume of backlogged trail work, which may serve as the "nexus" for pulling groups together.

Park management intends to establish a small committee of interested individuals within the community to assist in organizing and administering the establishment of a friends group. This committee would ensure that the benefits are not outweighed by the investment of time and effort spent both by park staff and by the friends group itself. The committee will explore opportunities in which a friends group could be most beneficial. One possibility is to establish a friends group with 501(c) status which would serve as a benefit in large project fundraising and grant-writing initiatives.

Management estimates that after a five year start-up phase involving a high degree of effort above and beyond the initial annual benefits, an annual increase of $100,000 is a reasonable goal.

Analyze Fee Program
Estimated annual net benefit: $350,000
Park management plans to conduct a fee program analysis to identify opportunities for increased revenue from existing or new fees. Presently, cave tours and front country campground fees are the bulk of the park's revenue. The cave tour fees were increased by 10% in 2003 and will increase again by 20% (to cover the reservation fee) in 2004. Fee increases will continue to rise in line with other cave tour operations nationally. Front country campground fees should be analyzed for comparability, and fees could increase if some sites included water and electricity. Fees have never been charged for backcountry camping even though permits are a requirement; therefore, this is a potential area for revenue growth.

Fees also exist for incidental business and film permits; training center and picnic shelter use; and specialized interpretive tours. Incidental business and film permit fees yield minimal revenue to the park; however, some opportunity for increased revenue may exist. The training center and picnic shelters, if marketed properly, could be better utilized and a higher fee structure may be warranted for specific uses. Finally, specialized interpretive tours cover such offerings as the wild cave and introduction to caving tours. These tour offerings should be expanded and above ground specialized interpretive tours could be developed.

A Look Ahead

The future for Mammoth Cave National Park is filled with change and possibility. Looking ahead five years, the development of three centers will change the park's sphere of influence and steer it toward more fully achieving its mission. The driving force behind the three centers is a strengthening of partnerships with those who care about the future of the park. The Visitor Center, Learning Center, and Park City Heritage Center each focus on an important group of constituents, the visiting public, research and education community, and regional community respectively. With an increase in the relevance of the park to these groups, public appreciation and stewardship of natural and cultural resources will grow.

Visitor Center
The Visitor Center is the hub of activities in the park and provides the capacity for educating the visiting public. However, the current Visitor Center was completed in 1963 and was designed for a daily capacity of 1,500; this maximum is frequently exceeded by more than 250% during the peak season. In addition, the existing Visitor Center does not offer educational exhibits.

The Fee Demo program is the catalyst for the construction of a new Visitor Center. This three phase construction project will be underway between 2005 and 2008 at a cost of $6.2 million. Before construction can begin, $4.2 million in fee demo revenue must be collected. The park expects to have this amount accrued by the end of 2004.

The Visitor Center will house fee collection facilities, a large enclosed public space, an office area, and 2,700 square feet of exhibit space. Because the park currently has no exhibits, the $1.7 million educational component of the new Visitor Center is particularly critical - it is also the clearest link to both the Learning and Park City Heritage Center.

The driving force behind the three centers is a strengthening of partnerships with those who care about the future of the park.

Above: New Visitor Center front view.
Left: Interior main entry area.

Park City Heritage Center will help to foster an inextricable relationship between the community and the park, and will provide citizens with invaluable opportunities for historical and cultural reflection, and folklife education.

The park will have a connecting link with the Park City Heritage Center near Bell's Tavern Historical Park in Park City.

Learning Center
Organized around a series of bio-geographic regions and ecological monitoring networks, learning centers are places where cooperation and partnership bring science and education together for preservation and protection of areas of national significance.

As a World Heritage Site and International Biosphere Reserve, Mammoth Cave National Park attracts worldwide attention. With extraordinarily complex natural resource issues that transcend its legislative boundaries and growing demands from the research community, there is a strong need for a Learning Center that will develop partnerships for scientific exploration and effective communication of the results.

The vision for the Learning Center is for it to become the pre-eminent international institution for cave and karst studies, and for the development of unparalleled science-based educational products and programs. This vision will be made possible through a pioneering partnership with Western Kentucky University (WKU). The park and WKU will share responsibility for sponsorship and scientific oversight of center funded research. This cooperative endeavor will provide additional capacity to host research and to export scientific knowledge on cave and karst resources in terms understood by wide audiences and in ways that encourage student, scientific, and public participation.

The Learning Center will be located at the existing Maple Springs Research Center, and its creation will transform this facility. Overnight capacity will double, and daily classroom capacity will triple. A request for $225,200 slated for 2004 will provide for operating funds, and an additional $2 million is needed over the next 5 years to upgrade the facilities.

Park City Heritage Center
The heritage and culture of the people of South Central Kentucky is a compelling story currently not being told. The mission of the Park City Heritage Center is to preserve and protect the unique heritage and culture of South Central Kentucky and to provide a venue for presentation of these values to the public through various media and educational activities. In addition, the center will serve as an educational archive and site for living history and heritage crafts demonstrations reflecting the folklife of the region.

For the regional community itself, the Park City Heritage Center will help to foster an inextricable relationship between the community and the park, and will provide citizens with invaluable opportunities for historical and cultural reflection, and folklife education.

The Park City Heritage Center will be located on a 37-acre parcel in Park City at the gateway to Mammoth Cave National Park. The Park City location has historical significance as a central point for early Kentucky transportation, commerce, tourism, and linking the park to key regional cities with U.S. Highway 31-W. The construction of I-65 has overshadowed this historic corridor, and the Park City Heritage Center will draw people from the Interstate to learn about the heritage and culture of this unique region.

This public-private partnership will provide visitor services including lodging, food, area information, an IMAX theatre, and a reservation kiosk. As an extension of visitor services provided at the park's Visitor Center, the Park City Heritage Center will also include a park visitor information area.

Acknowledgements

Mammoth Cave National Park would like to recognize the efforts of many individuals and organizations that made this business plan possible.

The commitment, cooperation, and input of the following members of the Mammoth Cave National Park staff were critical both in ensuring the depth and accuracy of the quantitative analysis and in challenging perceptions of what is possible for the future of the park:

Mammoth Cave National Park
Ron Switzer, *Superintendent*
Bruce Powell, *Deputy Superintendent*
Mary Conner, *Administrative Officer*
Gayle Giesecke, *Superintendent's Secretary*
Henry Holman, *Management Assistant*
Mark Rich, *Safety Officer*
Eunice Allen, *Budget Officer*
Peggy Poynter, *Office Support Clerk*
Mike Adams, *Chief of Interpretation & Visitor Services*
Dorthy Carder, *Administrative Technician*
Jim Carroll, *Chief of External Programs & Communications*
Vickie Carson, *Public Information Officer*
MaryAnne Davis, *Volunteer Coordinator*
Tres Seymour, *Publications Specialist*
Mark Depoy, *Chief of Science & Resource Management*
Steve Thomas, *Chief of LTEM*
Bob Ward, *Cultural Resource Specialist*
Judy Pedigo, *Administrative Technician*
Wayne Elliott, *Chief of Law Enforcement & Emergency Services*
Marla Davis, *Administrative Technician*
Steve Kovar, *Facilities Manager*
Mary Jo Veluzat, *Assistant Facilities Manager*
Nancy Varnado, *Administrative Technician*
Joe McGown, *Chief of Fee Management*
Leslie Lewis, *Fee Specialist*

Also, the park would like to acknowledge and thank the following participants in this effort:

National Park Service
Tom Dale
Tracy Fehl Swartout
Ruth Jobe
Jon Meade
Jennifer Treutelaar

National Park Conservation Association
Phil Voorhees
Scott Edwards
Mike Heaney
Pat Hunter

The National Park Business Plan Initiative is the result of a creative public/private partnership between the National Park Service and the National Park Conservation Association with the generous support of the following organizations:

Evelyn & Walter Haas, Jr. Fund
Vira I. Heinz Endowment
William and Flora Hewlett Foundation
Roy A. Hunt Foundation
Henry P. Kendall Foundation
LSR Fund
William Penn Foundation
Anonymous

Business Plan Consultants
Karen Miner, *School of Community and Regional Planning, University of British Columbia*
Ryan Martin, *Terry College of Business, University of Georgia*

National Park Service
U.S. Department of the Interior

Mammoth Cave National Park
P.O. Box 7
Mammoth Cave, Kentucky 42259

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